THE AUTOMOBILE

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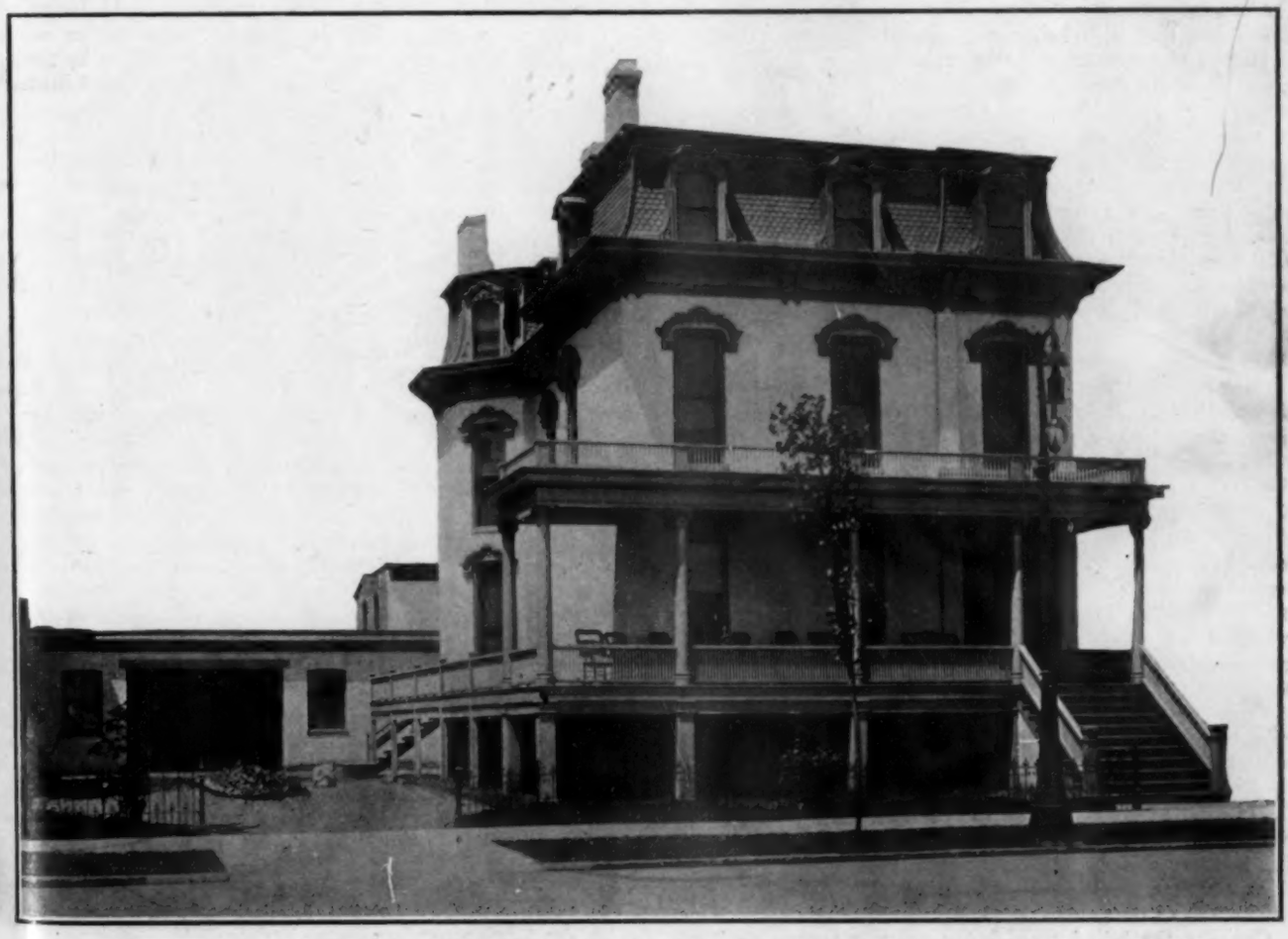
Chicago Automobile Club.

Headquarters of Automobilism in the Western Metropolis Now Housed in Club Building on Michigan Avenue, overlooking the Picturesque Lake Front.

VISITING motorists at the second annual Chicago automobile show had an opportunity of inspecting the recently acquired clubhouse of the Chicago Automobile Club—the only automobile organization in the United States, with the single exception of the Massachusetts Automobile Club in Boston, that has its home in a building occupied wholly and exclusively by the Club. The Chicago clubhouse stands at 243 Michigan Avenue, one block south of the Auditorium Building and overlooking the new park on the lake shore. Michigan Avenue is the one drive used by automobilists and all pleasure drivers going from the heart of the city to any part of the beautiful South Side or vice versa, and by all who drive from the



NEWLY ACQUIRED CLUB HOUSE OF THE CHICAGO AUTOMOBILE CLUB, FORMERLY A PRIVATE RESIDENCE.

North and West Sides to the South Side or in the reverse direction.

This clubhouse is one of the monuments still standing to impress upon the mind the marvelous growth of Chicago. Built and occupied as a private residence by Hetty Green less than quarter of a century ago, on a street which was in its time the finest and most fashionable boulevard in the uncouth young metropolis that was straggling up from the ashes of the ever-memorable fire, this relic of a departed glory now stands neighbor to the modern skyscraper which has driven the elite of the city to establish new exclusive fashionable sections on Prairie Avenue from Sixteenth to Twenty-second Street, and miles farther south along the edge of the lake in "Aristocratic Kenwood."

FORMERLY PRIVATE HOUSE.

It remained for the Chicago Automobile Club to reclaim this comfortable, commodious and well-located old residence from the ignominy of a "Boarders Wanted" sign in its ample windows, and through the club's recognition and seizure of the opportunity each is the gainer. Some alterations seemed necessary to adapt the interior to the new purposes, and redecorating was of course required. This work has been nearly completed now, not only as regards the club rooms on the first floor, but also in the seven sleeping rooms on the second floor, which have been furnished in a bright and comfortable way to be rented to bachelor motorists, who will appreciate the undoubted advantages of the downtown location and the convenience of having the storage stable and repair shop in direct connection at the rear with the house in which he has his room. The garage is rented to private persons with the reservation of special privileges to club members who are entitled to storage for twenty-four hours without charge.

The three rooms on the first floor have been thrown into one immense members' room more than fifty feet long by twenty feet wide. This is lighted by six old-fashioned, full-length windows reaching from the high ceiling to the floor and opening into the veranda that extends around the front and south side of the house. This room is decorated and carpeted in dark green, while the furniture is of dark wood upholstered in leather and tapestry. At the front end of this room stands a piano with Pianola attachment, while at the opposite end is a large table on which is kept the current automobile literature.

Opening off the assembly room at the rear is a ladies' room decorated and furnished in salmon pink, with bird's-eye maple dressing table, stand and chairs. This room has direct communication with the side veranda so that the ladies arriving in automobiles can alight at the side door and enter the ladies' parlor without passing through the reception room.

Opposite the ladies' room is the office of Manager Wetzel, of the club, to whom credit is due for much of the progress made in getting the building into its present pleasing state. Mr. Wetzel acts also as assistant secretary and takes an enthusiastic interest in all matters concerning the club.

At the rear are two dining rooms, a small private one on the north side and a large one on the south side, the building facing the east and Lake Michigan. In the basement or sub-ground floor is a third dining room at the rear and a billiard room and buffet in front. A door from the kitchen opens directly into a large stable which has storage capacity for probably fifty automobiles and a roomy repair shop in connection.

Returning to the house, and mounting the front stairs, one arrives at the top before the door of a room called "the den" fitted up in Turkish style for the use of the directors and other members when some privacy or quiet is desired. The second floor is divided by a hall that extends its full length, with sleeping rooms of different sizes on either side. Those on the south side have bay windows, are spacious, cheerful and neatly furnished. Several of the sleeping rooms are already rented.

ORGANIZED IN 1900.

Organized in August, 1900, the club has grown to a membership of about 150, with several applications pending. The club, at its last meeting, appointed an entertainment committee for the week of the show, comprising the entire board of directors, and chose a special committee of three to co-operate locally with the N. A. A. M. for the Good Roads Convention on February 20.

Originally the club was organized as most automobile clubs are, to promote interest in the new sport, to interchange knowledge gained through experience and to acquire mutual moral support through union of individuals. As last amended, the objects are stated as follows in the constitution: "The promotion and maintenance of a social organization composed of persons owning and interested in the use of self-propelled vehicles for private use. To afford a means of recording the experiences of members and other users of automobiles. To promote original investigation in the development of motor carriages. To co-operate with others interested in securing rational legislation, rules and regulations governing the use of automobiles. To protect the interests of owners and users of automobiles against unjust or unreasonable legislation. To maintain the lawful rights of owners or users of automobiles. To promote and encourage improvement of the highways and generally to maintain a social club devoted to automobilism."

The first president was Arthur J. Eddy, author of "One Thousand Miles in an Automobile," and one of Chicago's best known motorists. Edwin F. Brown, one of the earliest amateur automobilists of the Middle West, was first vice president, and Charles T. Jeffery, a young experimenter now in Kenosha, Wis., was first secretary. Meetings were held in a room in the Monadnock Building. Later on headquarters were established in the new Steinway Building on Van Buren Street, near Michigan Avenue. President Eddy was succeeded in office by F. C. Donald, and H. M. Brinckerhoff was secretary after Mr. Jeffery. At the last general election for the year 1902-3, Honore Palmer, the youngest alderman in the Chicago City Council, became president; John Farson and Howard H. Goss were made first and second vice-presidents; Robert Tarrant, Jr., secretary, and Frank X. Mudd treasurer.

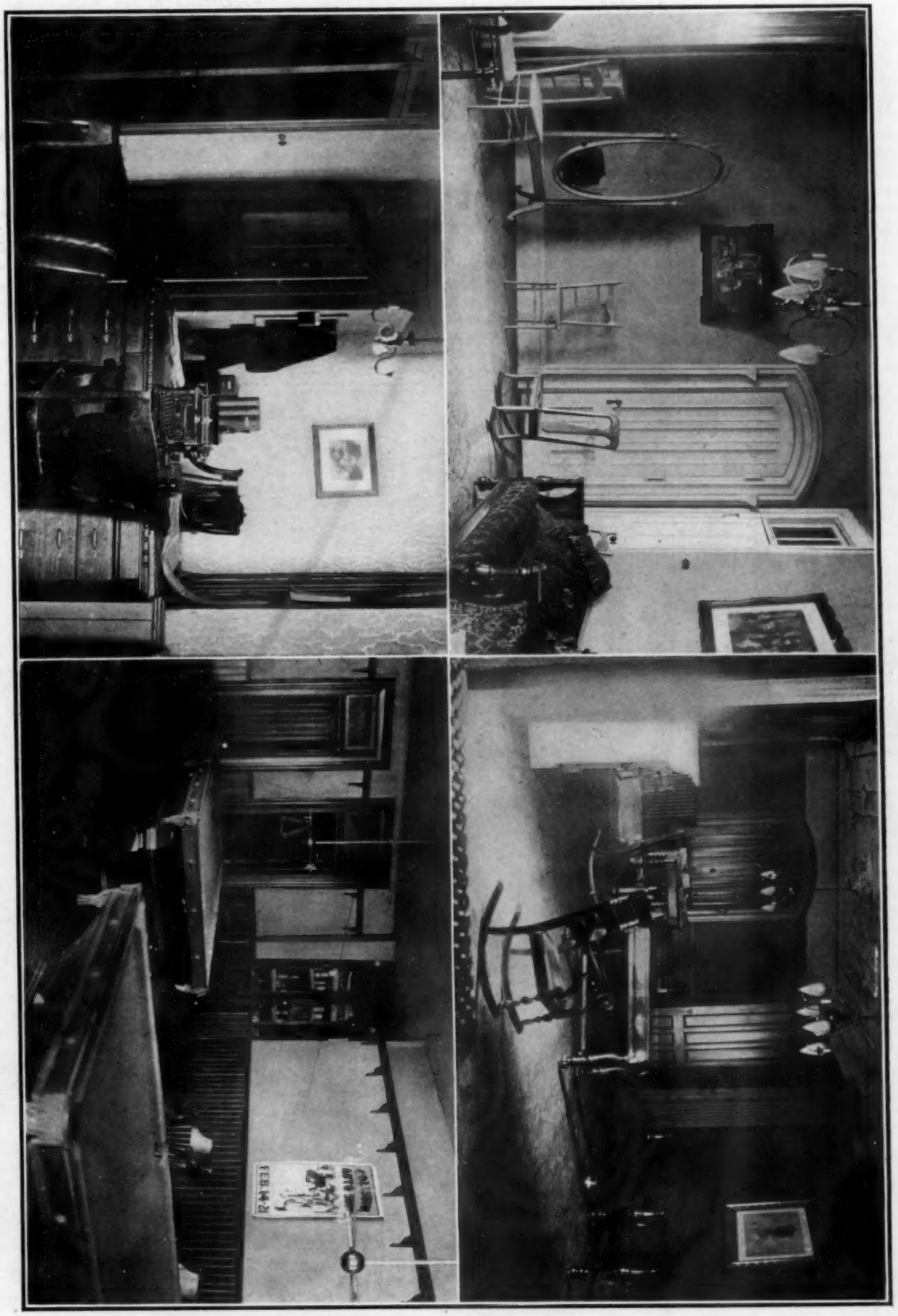
President Palmer sent in his resignation last month, however, on account, it is believed, of the attitude of the club toward the automobile license and number ordinances that have been passed by the council this winter, the first of which was vetoed by Mayor Harrison because of the active opposition of the club, and the second of which, requiring figures four inches in height, was introduced by Alderman Palmer. The vacancy created by the resignation has just been filled by the election to the presidency of Charles W. Gray, who as treasurer of the Inter Ocean Co., first became interested in automobiles through the promotion by the *Inter Ocean* of the combined motor vehicle race meet and exhibition at Washington Park track in September, 1901.

A feature of club activity has been the club runs to Hammond, Ind.; Milwaukee, Wis., and Grand Rapids, Mich. Last August the club promoted and held a successful 100-mile endurance run to Waukegan, Wis., and return, and in October held a card of automobile races.

GROWTH OF THE CLUB.

The acquirement of its present home gave great impetus to the club, whose membership has grown nearly 150 per cent. since last March. There are now 150 active and 25 associate members, the latter including well known automobilists from New York, Cleveland, Detroit, Milwaukee, Indianapolis, Grand Rapids, Cedar Rapids, Sacramento, Los Angeles and smaller and less remote cities. The honorary members are the Hon. Richard Yates, governor of Illinois; Carter H. Harrison, mayor of Chicago; Edward B. Ellicott, chairman of the automobile commission of the City of Chicago, and Hon. Martin Dodge, director of the United States Office of Road Inquiries. The active membership list includes many names of persons prominent in the city's business and social life and those of most of the leading automobile tradesmen in the western metropolis. More than 100 motor vehicles are personally owned by the club members.

INTERIOR VIEWS IN THE NEWLY EQUIPPED CLUB HOUSE OF THE CHICAGO AUTOMOBILE CLUB, ON THE LAKE FRONT, CHICAGO.



Ladies' Room. Member's Room, Looking Toward Rear.

Manager's Office. Billiard Room and Buffet.

INTERIOR VIEWS IN THE NEWLY EQUIPPED CLUB HOUSE OF THE CHICAGO AUTOMOBILE CLUB, ON THE LAKE FRONT, CHICAGO.

Tri-State Sportsmen's Show at Detroit.

Staff Correspondence.

DETROIT, Feb. 12.—The yelping, howling and barking of dogs, the cracking of rifles and ringing of bullets against metallic targets, the puffing and rattling of gasoline motors in operation and the pounding of carpenters' and decorators' hammers characterized in an aural way the opening of the second annual sporting goods, automobile and dog show of the Tri-State Sportsmen's Association now in full swing at the Detroit Light Guard Armory. In a far more agreeable way the optical nerves of the visitor are stimulated by the strong national colors of a profusion of American flags artistically draped from the steel arches of the roof and by the harmonious combinations of colors in the railing draperies around the booths. Purple and white, green and white, black and yellow are some of the combinations, and the designs are generally artistic and pleasing.

The electrical sign work is also a prominent feature of the exhibition, some very ambitious attempts having been made—and accomplished—to attract the attention of the public. Conspicuous among these is a sign extending all across the east end of the main hall above the balcony announcing in enormous illuminated letters that "Cadillac Automobiles Go All the Time."

In general the open center of the main floor is occupied by exhibits of tires and lamps, rifles and other sportsmen's small goods, phonographs and Aeolians, while the automobiles and marine motors and launches are shown in spaces along the north wall, under the balcony at each end and in the drill hall in the basement.

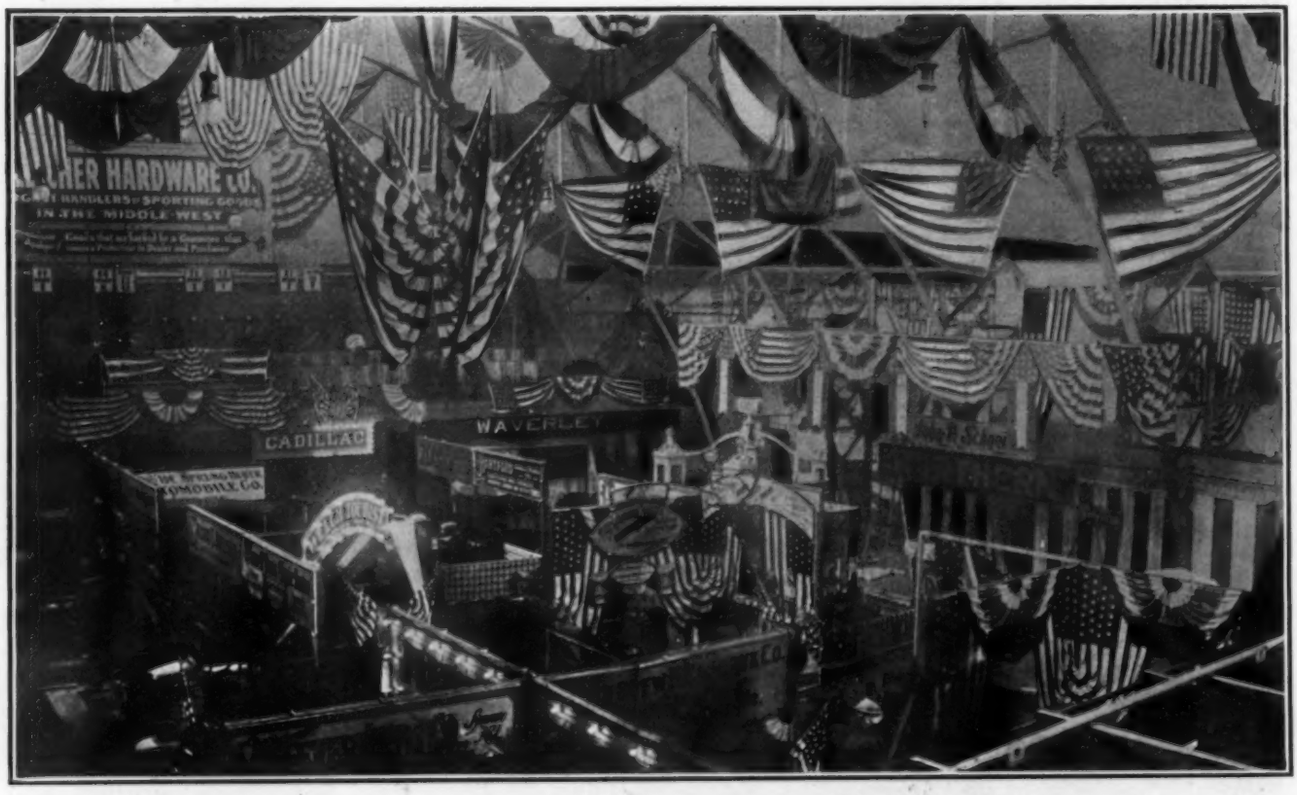
Even before the first open night of the show considerable comment has been made by the automobile and sporting goods exhibitors regarding the distracting din made by the canine displays arranged in temporarily constructed stalls in the gallery; and undoubtedly a more generally satisfactory arrangement would have been to have placed the dogs in the basement and put some of the exhibitors of sundries in the balcony. Then the howling and yelping would not penetrate to the main hall or would at any rate come as through a muffler.

The triple combination of automobiles, sporting goods and dogs is well calculated to attract thousands of interested spectators, and the show is far more elaborate and pleasing than would be a separate exhibition in any one of these lines. In connection with the show there has been arranged a four-days' gun shooting tournament which, like the exhibition of dogs, is drawing to Detroit many persons from all parts of Michigan and from other neighboring states as well.

The show is, for a local affair, replete with novelties in the automobile line; about the dogs and the hunters' goods we are supposed to care little and to know less.

A position of prominence in the center of the main floor is occupied by a large delivery wagon that has been used regularly during the past three months here by the Detroit *News* and is being exhibited by the Ide Sprung Huber Automobile Co., of Detroit. This is a hydrocarbon car with a chassis of the French pattern surmounted with the usual wooden delivery wagon top extending forward to protect the driver's seat, which is located just forward of the middle of the platform. The wagon is driven by a multiple cylinder (apparently quadruple), vertical motor disposed longitudinally at the front with flywheel toward the back and a longitudinal sliding gear transmission under the footboard. Drive is by shaft through bevel gears to a differential on a transverse counter-shaft with chain connection from sprockets on the ends to sprockets on the rear wheels. The radiator is of peculiar type, consisting of a triple series of three-eighths-inch brass tubes disposed vertically on either side of the hood.

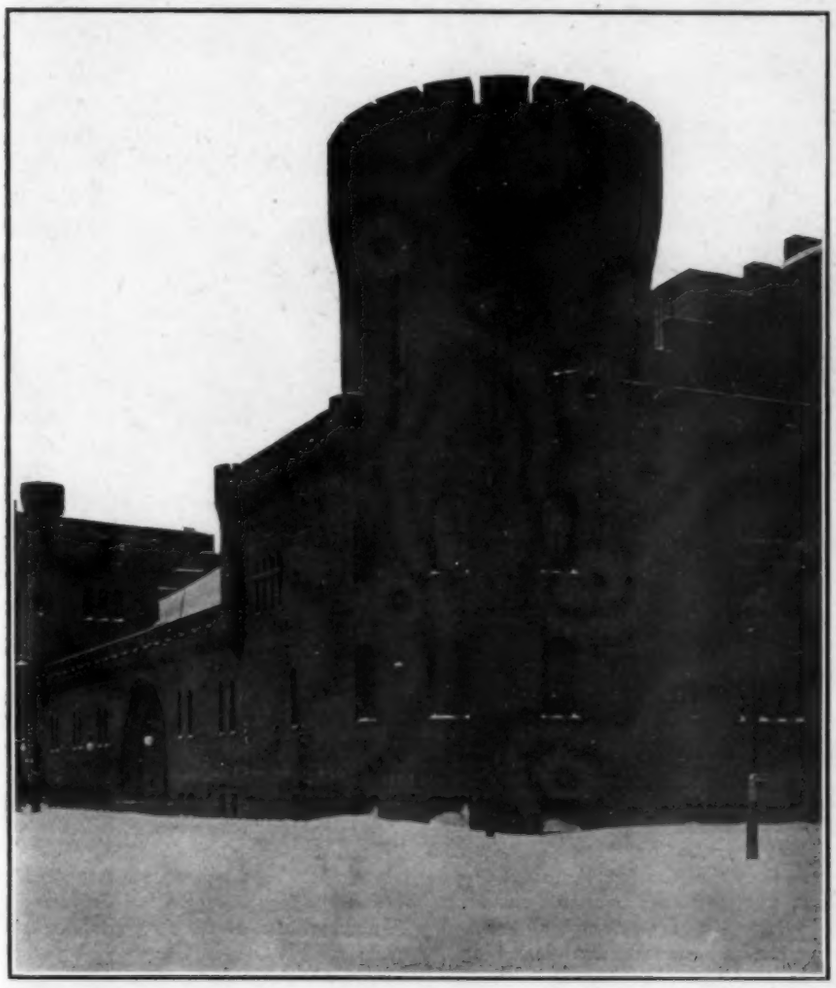
In the booth across the aisle from this the Detroit touring car is for the first time publicly exhibited by the Wheeler



GENERAL INTERIOR VIEW OF THE DETROIT SHOW SHOWING ELABORATE COLOR DECORATIONS.

Mfg. Co., of Detroit. This is of the detachable tonneau type with hooded front and reachless platform frame, but is driven by a single cylinder motor hung horizontally beneath the rear of the car and driving by center chain from a planetary transmission on the shaft to differential on the rear axle. The motor cylinder is suspended from an angle iron brace at the rear. The water cooling is by forced circulation through a disc radiator consisting of a series of half a dozen pipes disposed transversely and in a plane parallel to the floor of the car under the hood end. The water and gasoline tanks are carried in the hood, which has harmonious lines and a dash raked to the same angle as the seats and other upright body lines. The muffler is under the tonneau portion of the body, extending forward at the right hand side of the motor. The exhaust enters at the back through a pipe having two elbows. The car has wheel steering and one lever control. It is finished in automobile red with black trimming, striped with gold.

The Flint Roadster, publicly displayed for the first time by the Flint Automobile Co., of Flint, Mich., is shown in a booth close by. This is a light car of the single cylinder, horizontal motor type developing 8 1-2 horse power at 750 r. p. m. The motor can be throttled down to 200 revolutions. The cylinder is 5 1-2 inches bore by 6 inches stroke. The car has a 72-inch wheel base and a 43-inch seat. It has a reachless rectangular platform frame, artillery wheels and a hood with a double curve that gives the car an individuality of its own. The body is also noticeably long back of the seat. It is finished in black with gold striping. The space under the head is utilized solely for storage purposes. The water and fuel tanks are placed side by side longitudinally at the right of the motor in the rear. They hold respectively 7 1-2 and 9 1-2 gallons. The cylinder and cylinder head, including valves and plug, are water jacketed, preventing premature ignition. The inlet valve acts by inspiration, but the exhaust valve is mechanically operated. The Kingston carbureter, made by Byron Kingston, of Kokomo, Ind., is used. Transmission is by the Champion No. 2 planetary gear, giving two forward speeds and reverse, operated by one lever. Drive is by single Baldwin chain to Brown-Lipe differential gear at the middle of the rear axle. Steering is by side tiller. The motor runs noiselessly and without perceptible odor.



DETROIT LIGHT GUARD ARMORY WHERE EXPOSITION WAS HELD.

Seventeen of these vehicles have been put out to date and preparations have been made for extensive production this year. The car complete weighs 1,100 pounds.

In the Flint booth is also being shown a miniature unfinished automobile body of identical pattern to the body of the Flint Roadster, made by the W. F. Stewart Body Co., of Flint, Mich. This concern, which has one of the largest carriage body factories in the country, is preparing to enter extensively into the automobile body business. Champion gears are also being exhibited in this booth.

The Marr is another Michigan production now being exhibited for the first time, and it is attracting much attention and favorable comment for its very attractive appearance and its novel features. It is made by the Marr Auto. Car Co., of Detroit. This is a 1,000-pound road car of the American—one might almost say of the Michigan—type, with single cylinder, horizontal motor suspended under the rear of the body and driving through planetary gears by central chain to the differential. There are two forward speeds and reverse. The motor cylinder is 4 3-4 inch bore by 6-inch stroke. Both valves are mechanically operated. The carbureter is of the float feed type with throttle and air regulator. The spark lead is automatically operated by centrifugal governor on the valve rod. Jump spark ignition from battery is used. The crank is lubricated by the splash system, and the bearings at the head are oiled, by compression in a cup, from the crank case. The cylinder oil cup is located in sight on the dash, and is, with the exception of the steering column and its foot trip dog at the base, the only visible piece of machinery on the footboard or dash.

The most novel features of the Marr are the steering mechanism, the control mechanism, the speed change and the contact breaker. Wheel steering is employed and the steering column is so mounted in a semi-circular housing on the footboard that it can be moved with the hand wheel through an arc of nearly 45 degrees until it stands vertically against the dash, entirely out of the way of the operator in leaving or entering his seat. By means of a series of holes and a spring bolt on the housing, the post can be set immovably at half a dozen different angles, and can be released instantly by pressure of the foot. There is a bevel pinion on the end of the steering column that engages the segment of a bevel gear on a transverse shaft under the footboard. This shaft has a depending arm movable forward and back and connected with a rod extending forward to connection with a lever arm on the right steering knuckle that is parallel with the hub pin and is located just under the front axle.

Starting, stopping, reverse and change of speed are all accomplished by one lever at the right of the seat. This works in a double slotted arc secured to the side of the body and rotates a segmental gear that meshes with a gear on a shaft that, in different positions, tightens one or other of the friction bands on the planetary gearing. When in vertical position and standing in the central passage between the two slots in the arc, the lever is locked with the carriage stationary, but when the lever is passed through this opening and drawn full back the outer slot it forces the internal clutch spreader into place and the machine is reversed.

The water tank and radiator are under the hood and together hold 3 1-2 gallons of water. The gasoline tank lies parallel to the motor on the right side and holds 9 gallons—sufficient for a run it is said of 350 miles. There is a gear pump in the circulatory system.

The Marr has a channel steel rectangular frame supported on semi-elliptic springs. Artillery wood wheels are used. The body is designed with sloping rear for the attachment of tonneau seats. The gear, wheels and body are handsomely finished in a harmonious combination of automobile red with chocolate trimming striped with gold. One of these vehicles has been run 950 miles over Michigan roads. The first deliveries will be made in May, after which the capacity is expected to be three a day.

Two Jaxon steam carriages are displayed in the basement by the Jackson Automobile Co., of Jackson, Mich. They have never been shown before. The makers have also just completed a water-cooled and an air-cooled gasoline car that have been shipped to Chicago for exhibition at the Coliseum show. No Jaxon gasoline cars are being shown here, however. One of the steamers is of the runabout type and the other, though of similar pattern, has a folding front seat and is 300 pounds heavier. Both have artillery wood wheels. The most novel feature is the power plant, the engine used being that patented by J. A. Carter, a triple, single-acting cylinder, vertical engine with rotary valves operated from the crank-shaft by chain and reversed by a hand lever that slides and rotates the valves simultaneously. The boiler is of the vertical fire tube type with 450 tubes. Surrounding it is a water tank of thirty-five gallons capacity. At the right of the engine cylinders is a two-quart lubricating oil tank from which the oil is pumped automatically into the cylinder heads, whence it makes its way into the bottom of the crank case, where splash lubrication of the piston rod and crank bearings takes place. This is supplemented by an oil cup on the side of the crank case. The exhaust is muffled at the left side of the engine. The Studebaker burner and generator and the Reliance low water alarm are fitted. The fuel is regulated automatically. The gasoline tank and repair kit are in the dash.

William E. Metzger, of Detroit, has an interesting display on the main floor embracing the 1903 Packard gasoline touring car, the Toledo 16 horse power tonneau car, a Columbia electric coupe with inside control and a Baker electric runabout and a Baker stanhope. In addition to these, Mr. Metzger, who has the largest station in Detroit, is agent for the Cadillac, Winton and Waverley vehicles. These are being shown, however, in separate booths on the main floor.

John P. Schneider, another local dealer, is showing a Northern runabout, a Peerless tonneau, a National electric runabout without top and another with buggy top.

The Orient Buckboard that attracted attention at the New York and Cleveland shows is a feature of the exhibit of W. H. Weber, local agent for the Orient vehicles, of which he shows also a touring car; the Rambler, of which he displays a roadster and a touring car model; the Searchmont; the Buffalo electrics, of which a stanhope is shown, and the Royal motor cycle, one of which was installed this evening.

The Geneva 10 horse power steam tonneau car that was so conspicuous at the Cleveland show last week has a place here. In addition the Geneva Automobile & Mfg. Co. also shows a steam runabout with folding front seat and a detached burner for its horizontal semi-flash boiler. This is almost of semi-circular or trough shape, with straight burner tubes extending lengthwise and brazed at their middle to a curved mixing or distributing tube. This tube forms the top or T of the inlet tube from the generator. Before the fuel enters the generator it passes through a straight spiral of drawn 3-8-inch pipe over the center of the burner tubes, each of which is perforated with two rows of minute holes.

The steam tonneau car with condenser is the prominent feature of the exhibit of the White Sewing Machine Co., of Cleveland, which also shows a standard White steam carriage with buggy top, finished in black and a steam delivery wagon finished in black and automobile red with olive trimmings.

The new Olds doctor's 5 horse power gasoline coupe, the new single cylinder tonneau, and one standard Olds runabout and another with buggy top comprise the exhibit of the Olds Motor Works of Detroit. Mr. Rand is local agent for these vehicles.

An Autocar tonneau in red, a tonneau chassis, and the Autocar victoria top doctor's machine are shown by Frank P. Illsley, of Chicago, western agent for the company.

NEW MARR GASOLINE RUNABOUT EXHIBITED AT DETROIT SHOW.

Two Cadillac gasoline cars, finished in black, and with and without the detachable seats, are displayed by the Cadillac Automobile Co., of Detroit.

The Indianapolis plant of the International Motor Car Co., is exhibiting a Waverley electric runabout, a Waverley electric stanhope and an electric Chelsea.

The Peerless Mfg. Co., of Cleveland, is displaying one of its 1903 gasoline tonneaus.

A notable machine on the main floor is the powerful racing car built by the Henry Ford Co. for Tom Cooper and used last summer in the Detroit, Cleveland and Toledo race meets.

Sundries at the Show.

In a booth in the middle of the main floor, decorated with Indian blankets, against which are hung two striking Goodrich poster girls, the Detroit branch of the B. F. Goodrich Company, of Akron, is showing Goodrich single tube and detachable tires, Palmer bicycle tires, solid side-wire automobile and carriage tires, horns, folding rubber buckets and Haskell golf balls.

Hartford single tube, G & J and Dunlop detachable pneumatic tires, Turner solid endless tires for wagons and heavy vehicles and rubber mats and matting for vehicle floors are exhibited complete, mounted and separate, and in section, by the Detroit branch of the Hartford Rubber Works Co.

The Fisk Rubber Co. has a booth on the main floor in which it is showing Fisk single and double tube detachable tires.

Various styles of single and double tube detachable tires are displayed by the Detroit branch of the Diamond Rubber Co., with inner tubes and sections, and one tire with ribbed tread.

Goodyear single, detachable and solid tires complete, mounted and in section, are shown for the Goodyear Tire and Rubber Co. by J. O. Teagan, local manager, in the booth of C. H. Blomstrom, in the basement.

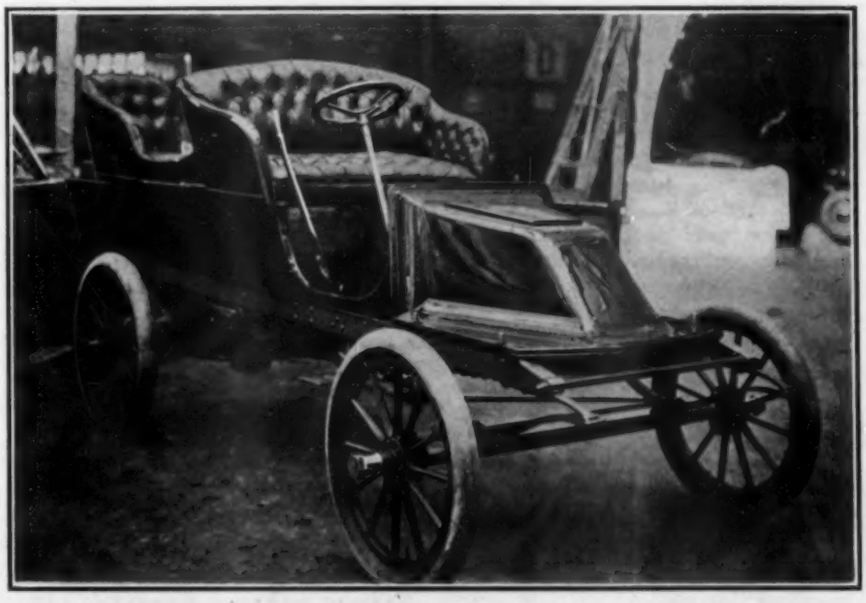
The Veeder Manufacturing Co. has a stand on the main floor in which it has reproduced the display at the New York and Cleveland shows.

Thirty different styles of gas and oil lamps for automobiles, bicycles, boats and carriages, from immense acetylene headlights to tiny bicycle lanterns, are shown by the Twentieth Century Manufacturing Co., of New York. The Cleveland exhibit has gone on to Chicago, and this is a new one. A novelty in these lamps is the black finish or oxidizing on the brass.

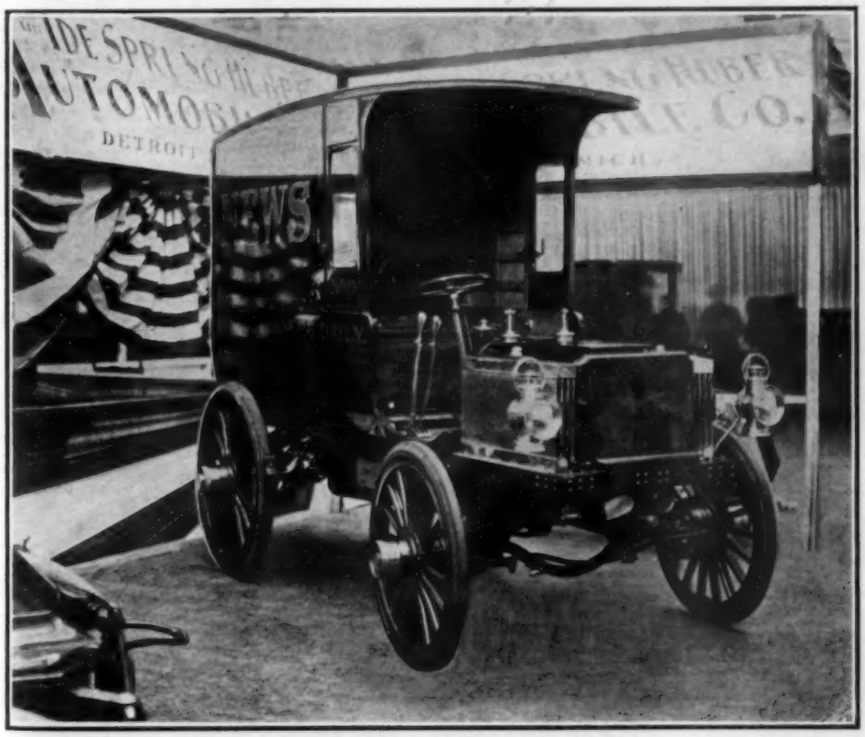
Max Dingfelder, of Detroit, shows a gasoline motor in one, two and four cylinders, for marine and automobile use, and has one of the single-cylinder motors mounted in a little runabout and another in a launch. A big four-cylinder engine is mounted in the middle of his booth under the south balcony and connected so that it can be operated.

A good display of sheet metal work for automobiles is made in the basement by the Briscoe Manufacturing Co., of Detroit. This includes disc and tube radiators as used in Olds and Cadillac runabouts, galvanized sheet metal gasoline and water tanks, of which 6,000 were made for the Olds Motor Works alone last year; sheet metal hoods of Panhard, Peerless, Autocar and Ray patterns; sheet metal muffler of Briscoe pattern, with conical diaphragm, having cut-out valve, and three slotted tubes for breaking up the exhaust gases; and pressed metal mudguards. The Briscoe Company has just begun the manufacture of these fenders and has its own methods of making them. All the attachments for the fenders are stamped out, and the bolts are provided with spring lock nuts to prevent them loosening and dropping off. Its tanks are made of sheet metal and are then dipped into melted metal for galvanizing, which solders all the seams. Its gasoline tank, such as it makes for the Cadillac machines, has a settling pocket beneath one corner and a strainer inside. The filling hole is in the center of a cast bronze plate with depressed center, so that gasoline will not be spilled when filling.

The Michigan Electrical Co., of Detroit, has a booth in the basement primarily to display the Exide batteries, for which it is the Michigan agent. It also shows Apple, Motsinger, Auto-Sparker, Holzer-Cabot and Carlisle & Finch ignition devices, Dayton spark coils and coils wound by itself; charging motors of the Northern Electric Manufacturing Co., of Madison, Wis., Columbia dry cells, and its own charging switchboard for home use with ordinary lighting current.



WHEELER MFG. CO'S GASOLINE TOURING CAR AT DETROIT SHOW.

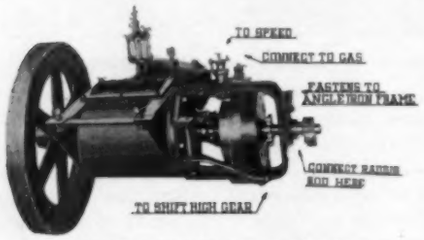


DELIVERY WAGON CONVERTED FROM ELECTRIC TO GASOLINE AT DETROIT SHOW.

Parts Dealers As Pioneers in the Field of Automobile Instruction.

Among those in the West most energetically attempting to help experimenters and assemblers by placing ready-made and even ready-assembled component parts at their disposal, there are "hustlers" of great energy. They think and execute for their groping brethren in the trade, and for the amateurs whose ambition it is to be mentioned in the local newspaper as "the young mechanical genius among our townspeople whose latest achievement is a complete automobile built entirely by himself in his spare hours."

In this branch of automobile work much is being done in an educational way by these agencies, whose activities reach out in wide popular circles. Whether the assembled automobiles run well or not so well, is comparatively no matter. They spread the gospel of mechanical vehicles and establish means for judging the virtues and faults of various forms of construction. They set to work many who could not find it in their heart to buy an automobile outright, and out of the experimental work of the many something of value materializes every now and then.

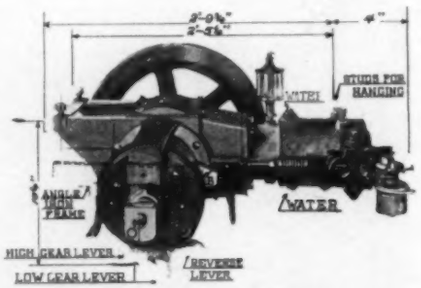


REAR END VIEW DYKE ENGINE.

Showing casting extending from crank head around the transmission. Sprocket placed on outside so that the differential on rear axle can be placed close up to the bearing. Take note of the lever for shifting the high gear.

As an example of the methods followed with commercial success in "the people's party" of the automobile state, drawings are herewith reproduced of one of the engines with transmission gear, which A. L. Dyke, of St. Louis, submits to the test of time, roads and tinkering. The cuts all represent the same 6 horse power horizontal gas engine in different views, and the captions under each are the same as supplied for the instruction of the would-be automobile builders.

To understand fully the methods of what might be termed the "catalogue and mail order school in automobile construction," it should be stated that the motor illustrated herewith forms only a portion of the equipment that may be bought. The speed changing device fitted to it—which, by the way, is the "Champion" and not made specially for this motor—can be bought separately. Complete frame and running gear may also be bought, and detailed and dimensioned descriptions are furnished. Finally, the school for amateur builders goes as far as those teachers who not only tell their pupils what to do but also do it for them; it fits the motor and transmission gear to the frame and

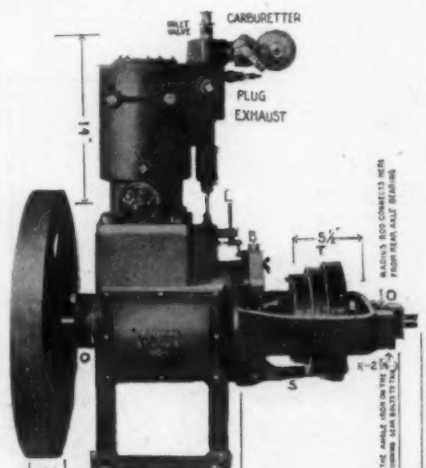


SIDE VIEW DYKE ENGINE.

Dotted line shows where the angle iron frame of running gear is bolted. O—Ring Oiler Bearing fitting in end of shaft.

NOTE.—The illustration shows length from foot to center of stud 2 feet and 9 3-4 inches. This should be 2 feet 9 3-4 inches from foot to end of cylinder and 4 inches from end of cylinder to end of inlet valve.

running gear and connects the operating levers. There is the complete chassis. To



TOP VIEW DYKE ENGINE.

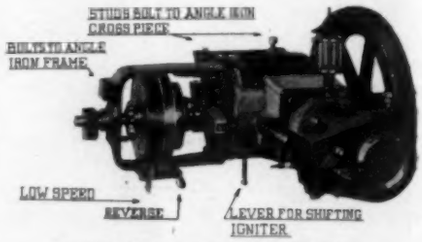
O—King Oiler Bearings. Only one oil cup to keep filled. B—Is two binding posts on new type Brush System contact box. Impossible to get out of adjustment. Thoroughly insulated from engine. L—Lever for shifting the igniter to advance or retard the spark. H—Studs for holding engine. A cross piece of angle iron bolted to these studs generally used. C—On carburetter is the throttle lever. By opening or closing this the speed is increased or decreased. S—Lever for shifting the high gear. T—Transmisson device. Engine will go in a 28-in wide frame. Length over all 37 inches.

cap the climax, it is willing to fit a body. There is the complete automobile. Every progressive step in the amateur builder's ambition is taken care of. The more ambitious he is the less he wants the parts assembled. The more radical buy the rough castings and forgings. But the school issues a timely warning in the following words:

> We can guarantee the most satisfactory service in the case of every engine, providing our instructions are followed and fully complied with. On the other hand, we guarantee unlimited trouble if they [the instructions] are neglected, or bought [the engines] with the idea that they will look after their own welfare at all times, regardless of neglect, abuse or foolhardy tampering.

In another place this industrial school, to which nothing exactly corresponding may be found outside of the United States, precisions wherein "foolhardy tampering" consists:

> In contrast, the so-called outfits now on the market consist merely of only a few of the principal parts, and although it may appear at first sight that the prices charged for these are low, the fact that in order to make these outfits operative it is necessary to purchase in addition many things not mentioned—for the proper working of which the makers assume no responsibility—must be taken into consideration.



FRONT END VIEW DYKE ENGINE.

The cylinder faces toward the front of the machine. If our plan is followed out entirely for building this machine we can supply you with a plan of "gravity circulation" doing away entirely with the use of the circulating pump. A band brake can be attached to the middle ring of the transmission, and so connected with the same lever that throws on and off the high gear that it will also throw on the brake when the clutch is thrown out, making absolute control of machine with one lever.

Those familiar with the work of constructing an automobile will not be misled by the attractive advertisements of these incomplete and consequently low-priced outfits, but experimenters and those to whom the business is new may be, as they cannot know the difficulty attending the proper arrangement and mounting of the various parts composing the transmission, operating and controlling mechanism of an automobile, work which requires great skill and experience quite beyond the amateur or average experimenter, and, if undertaken by them, is apt to prove not only excessively costly, but in the end very disappointing.

In the Dyke Outfit these difficulties are obviated, as the machine is turned

out from the shop complete in itself, requiring no careful adjustment of parts, so that no technical knowledge is necessary in putting it together.

From these candid words the ordinary manufacturer of complete automobiles may derive some satisfaction, seeing that the school freely admits that its disciples are more likely to avoid tribulations the more nearly completely assembled the machine is before they apply their own ingenuity for its completion or improvement. The school caters to those who are bound to acquire learning by the most approved, modern "object lesson" method, and reck not the cost and trouble provided their minds may be stored with first-hand knowledge. What may be their loss will be the nation's gain, for eventually a quick pace of progress must come from the thousands who have bought insight by the sweat of their brows, rather than from those who, from out of their wealth, buy the accomplished results of the insight of others, viz., complete automobiles of standard manufacture.

One of the thoughts which arise irresistibly from a casual study of the catalogues, without which no popular automobile engineering school by the object lesson method could exist, is that their delightful primer-like character might be imitated with excellent effect in the catalogues of the industry in general. If the manufacturer of complete automobiles would talk as plainly and with the same frank mention of the reasons for his construction, its details and dimensions, as must the parts-selling schoolmaster of the amateur builders among lowly but ambitious mechanics, his customers would frequently find such information of the greatest value in his relations with the repair shop, and those among them who are bound to tinker with their purchases would be enabled to do so with less punishment than they now usually receive.

Notes from Abroad.

A new French instrument, called the Criterium, is a combination of clock, odometer and speed indicator. There are two odometers, one registering continuously up to 10,000 kilometers, the other being adjustable to the zero point for registering a single run. The clock has a third hand and a special graduation outside the face; this hand moves at the end of every 200 meters and shows the speed at which this distance was covered, remaining stationary until the next similar distance is passed over.

A hydraulic press for forming the new frame members of pressed sheet steel has recently been installed by Ruberg & Co., Darlaston, England. Thus far no such apparatus is in use in this country, the few frames of this type made here being formed by hand.

PROBABLY A CHANCE FOR OUR ELECTRIC CAR BUILDERS.

"At this time," writes *The Autocar*, "there is little provision made for people who have passed middle life and who want a motor equivalent to the carriage and pair, not to mention the single-horse equipage or a pony cart. The machines which come very much the nearest to these requirements are the steam cars, as, while they have more speed than is actually required, they can be driven perfectly silently and pleasantly at the lowest rates, and if the internal combustion engine is to meet all requirements the behavior of the steam car at low speeds must be equalled. At the present time many potential purchasers are afraid to buy, as they do not want the high-speed vehicles they are almost bound to acquire if they decide on internal combustion machines of best make. Some have found by experience that low gearing alone does not result in a pleasant-running vehicle; the machine, as a whole, must be designed for its average rate of progression. This class of buyer, although a very large one, is not one of which much is heard. Speaking broadly, it is not in touch with automobilism, and does not make its wants heard as does the younger and more enthusiastic generation, whose wants are mainly catered for. The older people will only come into the movement by degrees, as they realize that their requirements are fully understood and carefully met."

In refraining from mentioning electric vehicles in this connection, *The Autocar* seems to indicate that this class of automobiles are not looked upon with that return of favorable attention which has been gained for them here mainly by the introduction of automatic electric charging plants driven by gasoline motors. Perhaps the omission contains a hint for the makers of these convenient equipments to "get busy" on the other side of the ocean.

La France Touring Car.

One of the most admired exhibits at the Garden show was a La France car, with touring canopy top, including baggage rail, sliding glass front and macintosh curtains. This car was one of the first of a series of 20 horse power road machines which is being turned out by the builders for the coming spring season, and the graceful lines of the aluminum body was suggested by a "Peugeot" which was imported as a model, although somewhat improved by artistic treatment and *de luxe* finish. The La France is built by the International Fire Engine Company, known throughout the country as successful builders of fire apparatus.

New Chicago Garage.

The National Motor Vehicle Company, of Indianapolis, has arranged for representation in the city of Chicago, in conjunction with the Cadillac Automobile Company of Illinois. The latter company is having erected for its own use a commodious automobile station at 1312 Michigan boulevard, where they are also putting in electric charging facilities. The National company has received from the Cadillac people one of the largest orders of the year for electric vehicles, and expects to commence shipments immediately upon completion of the Cadillac company's new building.

LA FRANCE 20 H. P. TOURING CAR OWNED BY GEO. R. BIDWELL.

Second Annual Automobile Show in Chicago.

Magnificent Exhibit of the Present Status of the Industry Presented to Public View in the Western Metropolis—Inclement Weather Does Not Prevent Large Attendance at Opening —Many New Cars on View—Excellent Arrangements and Good Management.

Staff Correspondence.

CHICAGO, Feb. 16.—Comparisons are odious, without question, yet the first and principal topic of conversation at the second annual Chicago Automobile Show that opened in the Coliseum on Saturday night, under the joint auspices of the National Association of Automobile Manufacturers and the Chicago Automobile Club, was how this show compares with the Madison Square Garden exhibition last month, and reportorial candor compels the admission that it outclasses the New York display in splendor, in excellence of arrangement, in roominess as to aisles and in the individual booths, in convenience, and in general cleanliness.

In the first place, all of the exhibits are on one floor, the only division being the wall separating the exhibits in the annex at the south end from those in the main hall. The combined floor space of the exhibition hall and the annex is as great as or greater than the floor space of the main hall, the basement, the restaurant and gallery and special boxes at Madison Square Garden, and the unobstructed main floor of the Coliseum extends under the balconies to the side and end walls of the building. There are no gallery exhibits, and, with the exception of the annex, the entire show can be surveyed from any single point on the main floor, or in the balcony. The entire floor is of polished maple, used for roller skating, so that the aisles are smooth, hard and clean. The booths of the different exhibitors are covered with carpeting of various neutral tones, shades of green and red predominating. There are no railings around the booths, except for separating different displays, and all signs, with half a dozen exceptions, are hung by wires from the roof arches, doing away with a maze of posts and pillars.

The decorations are elaborate, being a duplication of those used for the last horse show. The entire roof is hidden from sight by alternating green and yellow strips of bunting, hung edgewise beneath the central skylight. Large American flags hang from either side of the skylight between each two roof arches, while over the windows above the balconies between the arches are twenty-two groups of five each of the national emblems of the United States and foreign countries.

A wealth of rich yellow light streams through the windows of the skylight, and those above the balconies, which, together with the prevailing black and automobile red finish of the several hundred cars, of many types and styles, gives to this exhibition a luxuriousness of tone and a certain soberness and solidity of character never before attained by any automobile or bicycle exhibition in the Western Hemisphere. It is in great but most pleasing contrast with the flashy sparkle and inharmonious coloring of the bicycle shows, where the enamel on the machines vied with the color combinations of the cheese cloth draperies of the booth railings for bizarre effect. Perhaps this difference in character of the show reflects the contrasting characters of the two industries.

OPENING OF THE SHOW.

The show opened simultaneously with the arrival of the third heavy snowstorm that has afflicted Chicago inside of ten days, and which continued as a blizzard throughout Sunday and Sunday night; but evidently the public had grown accustomed to bad weather, for the attendance was very good, both as to number of persons present and as to class of visitors. Many pretty women, handsomely costumed, were present, and together with their escorts, evinced delight in sauntering along the aisles and in making the most of the freedom permitted by the absence of railings, to make close inspection of the machines, asking pertinent questions concerning construction and operation that clearly reflected a considerable general study of automobiles, at shows, in retail stores and factories, and in the automobile publications. The aisles and all open floor space were well filled, so that a reasonable estimate of the number present would place the figure at upwards of 5,000.

With a very few exceptions, and those mostly in the annex, the exhibits were in place and attractively arranged and well polished by evening, so that with the cluster of sixty-eight overhead arc electric lights, the twenty-four arc lamps under the balconies, and the innumerable incandescent lights in the illuminated signs, the Coliseum was a brilliant spectacle.

The main hall is occupied in the center only by complete vehicle makers or their agents, while the space beneath the balconies is reserved for the parts and sundries trade. As the annex is filled by the overflow, however, the exhibits there are mixed, although the same scheme of giving the center of the floor to the complete vehicle makers has also been followed out here by Manager Miles, to whom is due full credit for an excellent arrangement and general good management of the huge affair. In this connection it is also in place to mention the unequaled press facilities provided by Press Agent J. D. Porter, with the full co-operation of Manager Miles. The private box, or special band stand immediately over the main entrance, has been turned over to the representatives of the automobile and daily press, after having been furnished with half a dozen oak tables, a score of comfortable chairs, several typewriters and other tools of trade. From this stand one can survey the entire main exhibition hall.

An excellent musical program is provided every afternoon and evening by a first-class orchestra in the balcony.

CHARACTER OF THE EXHIBITS.

This is essentially an American show, with a distinct Western tone, both in the machines displayed and in the trade representatives present. The foreign and eastern effect is eliminated to a large extent by the absence of forty eastern exhibitors of American and imported cars, who had displays at New York, while the western element is strongly introduced by the exhibits of twenty-two complete vehicle makers, all located in the West, who did not show in Madison Square Garden. In all there are but sixteen fewer manufacturers of automobiles, parts and sundries represented at the Coliseum than at Madison Square Garden, 77 concerns having exhibited there that are not represented here, and 61 exhibiting here that were not represented there. Herewith follow comparative lists of the complete vehicle makers that will show the different character of the two shows.

To anyone familiar with the types of machines built by the various companies, careful perusal of these lists will at once indicate to how large an extent the foreign type car with multiple cylinder, vertical motor in front, has been eliminated from the present show, and to what an extent it has been replaced by the American type of car with single cylinder horizontal motor placed at the rear. No less than sixteen of the makers in the left column build foreign style cars, while, so far as is now known to the writer, only one in the second column does so. Another tendency of the western maker is apparently reflected by the fact that in the first list there are the names of eight makers of steam vehicles, while in the second there is only one.

How well these indications are borne out by the show itself is seen in the fact that

CHICAGO EXHIBITS NOT PRESENT AT NEW YORK.

American Gasoline Motor Co., Chicago.
Auburn Automobile Co., Auburn, Ind.
Bartholomew Co., Peoria.
Barton Boiler Co., Chicago.
Brandenberg & Bros., Chicago.
Brandes, J. C., New York.
Brecht Automobile Co., St. Louis.
Briscoe Mfg. Co., Detroit.
Buffalo Electric Vehicle Co., Buffalo.
Chelsea Mfg. Co., Chelsea, Mich.
Church Mfg. Co., Adrian, Mich.
Chicago Motor Cycle Co.
Chicago Motor Vehicle Co., Chicago.
Chicago Storage Battery Co., Chicago.
Cleveland & Canton Spring Co., Canton.
Columbus Motor Vehicle Co., Columbus, Ohio.
Dasey, P. J., Chicago.
Duryea Power Co., Waterloo, Iowa.
Elkhart Carriage Co., Albany, Ind.
Fanning Mfg. Co., Chicago.
Fisher, Carl, Indianapolis.
Flint Automobile Co., Flint, Mich.
Fredonia Manfg. Co., Youngstown, O.
Friedman Automobile Co., Chicago.
Grant, L. M., Chicago.
Hoffman Motor Co., Chicago.
Illsley, F. P., Chicago.
Imperial Wheel Works, Flint, Mich.
Jackson Automobile Co., Jackson, Mich.
Jones-Corbin Co., Philadelphia.
Lozier Motor Works, Plattsburg, N. Y.
Libal, Joseph, Chicago.
Kammann Mfg. Co., Chicago.
Konigslow, Otto, Cleveland.
Marble-Swift Auto Co., Chicago.
McCanna, John F., Chicago.
Mead Cycle Co., Chicago.
Merkel Mfg. Co., Milwaukee.
Motor Development Co., Chicago.
Motsinger Device Co., Pendleton, Ind.
Muncie Wheel & Jobbing Co., Muncie, Ind.
National Automobile & Motor Co., Oshkosh.
Northern Mfg. Co., Detroit.
Pardee & Co., Chicago.
Pittsburg Reduction Co., Pittsburg.
Porter Storage Battery Co., Chicago.
Racine Boat Co., Racine, Wis.
Russell, G. W., Springfield, Ohio.
Sandusky Automobile Co., Sandusky, Ohio.
Speedwell Automobile Co., Milwaukee.
Standard Carriage Lamp Co., Chicago.
Standard Motor Vehicle Co., Chicago.
St. Johns-Manville Co., New York.
St. Louis Motor Carriage Co., St. Louis.
Tennant, Irwin, Springfield, Ohio.
Tincher, T. L., Chicago.
Temple & Austrian Co., Ralph, Chicago.
Union Automobile Co., Union City, Ind.
Wagner Cycle Co., St. Paul, Minn.
Warner Differential Gear Co., Warner, Ind.
Waterloo Gas Engine Co., Waterloo, Iowa.
Westerfield Motor Co., Anderson, Ind.
Western Motor Co., Logansport, Ind.
Western Storage Battery Co., Indianapolis.
Wick & Co., H. B., Youngstown, Ohio.
Wisconsin Wheel Works, Racine Junction, Wis.
Woods Motor Vehicle Co., Chicago.

NEW YORK EXHIBITS NOT PRESENT AT CHICAGO.

Ajax Motor Vehicle Co., New York.
American Ball Bearing Co., Cleveland.
American Coil Co., Somerville, Mass.
American Georges Richard Co., New York.
Atwood Mfg. Co., Amesbury, Mass.
Auto Supply Co., New York.
Automotor Co., Springfield, Mass.
Backus Water Motor Co., Newark, N. J.
Baker Motor Vehicle Co., Cleveland.
Barber Mfg. Co., Boston.
Barry & Hayes, New York.
Berg Automobile Co., New York.
Brazier, H. Bartol, Philadelphia.
Buckmobile Company, Utica.
Buffalo Gasoline Motor Co., Buffalo.
Central Automobile Co., New York.
Century Motor Vehicle Co., Syracuse.
Clement A. Cycle Motor & Light Carriage Co., New York.
Cole & Woop, New York.
Conger Mfg. Co., Groton, N. Y.
Consolidated Rubber Tire Co., New York.
Country Club Car Co., Boston.
Covert & Co., B. V., Lockport, N. Y.
De Dion-Bouton Co., Boston.
Desberon Motor Car Co., New York.
Duryea Power Co., Reading.
Edison Storage Battery Co., New York.
Electro-Magnetic Speed-Changing Gear Co., New York.
Fickling & Fulton, New York.
Fisk Rubber Co., Chicopee Falls.
Foster Automobile Co., Rochester.
Gleason-Peters Air-Pump Co., New York.
Gordon Electric Ignition Co., New York.
Grout Bros., Orange, Mass.
Hall Motor Vehicle Co., Dover, N. J.
Homan & Schultz, New York.
International Auto & Vehicle Tire Co., Milltown, N. J.
International Fire Engine Co., New York.
Keep, O. H., Jr., New York.
Kensington Auto Mfg. Co., Buffalo.
La France Automobile Co., Elmira, N. Y.
Lane Motor Vehicle Co., Poughkeepsie.
Loomis Automobile Co., Westfield, Mass.
Mfg. & Selling Co. of America, New York.
Mechaley Bros., Stamford, Conn.
Meriam-Abbott Co., Cleveland.
Metallic Rubber Tire Co., New York.
Meteor Engineering Co., Reading.
Miller, C. E., New York.
Mobile Co. of America, New York.
Motor Cycle Mfg. Co., Brockton, Mass.
Motor & Gear Mfg. Co., New York.
New Process Rawhide Co., Syracuse.
Pan-American Automobile Co., New York.
Paris-Automobile, Paris.
Pope Robinson Co., Mass.
Post & Lester Co., Hartford.
Smith, E. L., Boston.
Spaulding Auto & Motor Co., Buffalo.
Splitdorf, C. F., New York.
Standard Automobile Co., New York.
Stearns Steam Carriage Co., Syracuse.
Union Motor Truck Co., Philadelphia.
Upton Machine Co., New York.
Vehicle Equipment Co., New York.
Walter Car, New York.
Waltham Mfg. Co., Waltham, Mass.
Ward-Leonard Electric Co., New York.
Warwick Cycle & Auto Mfg. Co., Springfield, Mass.
Weston-Mott Co., Utica.
Wetzel, T. J., New York.
White Sewing Machine Co., Cleveland.
Whitlock Coil Pipe Co., Hartford.
Whitney Automobile Co., Whitney's Point, N. Y.

there are but three exhibits of imported machines—the three Darracq's and Darracq chassis, the two De Dions and the small Panhard, with orange finished aluminum body—and only a dozen other makes having the vertical motor in front. There are in all only half a dozen makes of steam carriages, and but five of electric vehicles represented out of a total of seventy com-

FRONT OF COLISEUM BUILDING, MICHIGAN AVENUE, CHICAGO—THE GREAT SHOW HOUSE OF THE WEST.

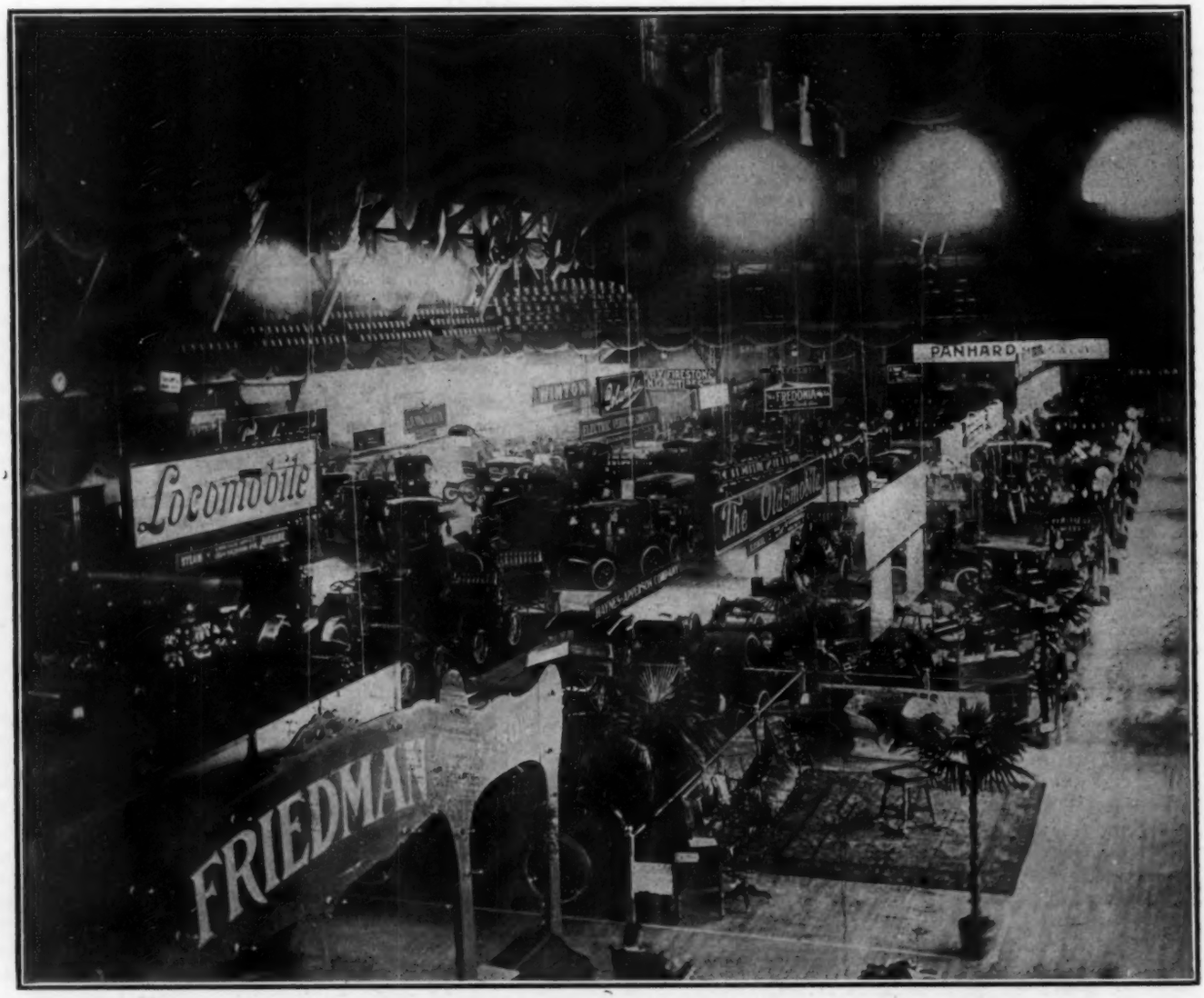
plete automobile makers. Subtracting the twenty-three makes of steam, electric and foreign type gasoline cars, leaves forty-seven makers of gasoline vehicles who are building single-cylinder, horizontal motor cars or other light vehicles of special type. This number is even larger, because some names substracted as building vertical motor in front machines, and steam and electric carriages, also make the American type gasoline car.

Reverting again from consideration of lists and figures, to the show itself, we find only two commercial vehicles on exhibition, one a Columbia truck and the other a delivery wagon. The enclosed gasoline car is also conspicuous by its absence, the Packard vertical engine car with imported limousine body being the most notable example present, with the small De Dion and smaller Oldsmobile coupes as other exceptions. Summed up, the type that predominates at the Coliseum show this winter is the single-cylinder, horizontal motor machine of from six to eight horse power, weighing 1,000 to 1,500 pounds, and having one seat for two passengers, with attachable dos-a-dos or tonneau seats or folding seat in front.

The Chicago show is noteworthy for the many new makes of vehicles on exhibition, for new and apparently good features in construction and operation, and for curiosities. Chicago has gained the reputation of being a center of automobile experimental work and, as expected, the fruits of much of this labor are exposed at the Coliseum. Whether the results in each case are good or bad can be determined better by practice than by theory.

The friction-drive machine, notably absent at New York, has here three exponents, the Friedman Automobile Co. and the Marble-Swift Automobile Co., both of Chicago, and the Union Automobile Co., of Union City, Ind.

The Friedman runabout and Union car use the flywheel as the friction disc, but the Marble-Swift reverses this construction, driving two friction wheels direct from the longitudinal motor shaft and through them driving two large friction discs on a divided counter-shaft, carrying small sprocket wheels on its ends outside of the body, from which drive is by two chains to the rear wheels. By this construction the speed is increased as the friction wheels are moved toward the center of the discs instead of toward their peripheries. There are two friction wheels that contact simultaneously with the two discs on opposite sides of the centers. For change of speed they are moved laterally toward or from each other, while for reversing, both are shifted from contact with the disc on one side into contact with the face of the opposite disc, so that there is no sliding of the friction wheels across the disc centers.



MAIN EXHIBITION HALL OF THE COLISEUM—NORTHERN PORTION TO THE LEFT OF MAIN ENTRANCE.

The Marble-Swift Company has on exhibition one car, a convertible tonneau driven by an 8-horse power, double-cylinder, vertical motor under a Mercedes pattern hood. The Friedman Company shows four of its little road wagons, and the Union Company two machines.

Many of the exhibits, especially of the leading manufactories of the country, are a repetition of the displays at Madison

Square Garden, but there are notable additions to their number and also a number of absentees. The four central and largest spaces are occupied by the exhibits of the Electric Vehicle Co., the Locomobile Co. of America, the International Motor Car Co. and the Oldsmobile Co., whose displays were brought directly from New York.

The stand of the International Company is about the only one in which an elaborate decorative scheme has been carried out. Over the center of its space, running longitudinally and supported on slender metal columns, is an iron work scroll carrying three rectangular wooden signs, bearing in gilded letters the name of the company and those of the Toledo and Waverly automobiles. The columns through the center, as well as others at the corners and sides of the booth, are surmounted by frosted globes, enclosing incandescent lights, while other lights illumine the signs. The vehicles shown are the same as at New York.

Pardee & Co., Chicago sales agent for the Packard, Centaur and American cars, have a striking exhibit close to the entrance, their leading features being the new Packard vertical motor tonneau, shown at New York, but now fitted with a magnificent brewster green limousine body by Henry Binder, of Paris, and two of the 1903 Packard tonneaus with horizontal single-cylinder motor in the rear, one car with the tonneau seats attached and the other without them. This firm also shows a chassis of the American single-cylinder, horizontal motor car.

The Oldsmobile Co. shows, in addition to the standard runabouts, new touring car, new doctor's coupe, and chassis of the runabout, a chassis of the touring car, showing the two-cylinder opposed motor hung longitudinally under the back of the body and the arrangement of the rest of the mechanism.

The chassis of the Locomobile 16 horse power gasoline tonneau, painted with aluminum or pegamoid, is always the center of a group of interested visitors, while the tonneau, with body on, and the limousine car elicit many words of praise.

A large and diversified line of gasoline cars is shown in the large and small spaces occupied by the Ralph Temple and Austrian Co., Chicago, and Western agents for Smith & Mabley, the Franklin Manufacturing Co., and the General Automobile and Manufacturing Co. Positions of prominence in this display are given to four Franklin air-cooled cars and a Franklin chassis. The four cars are finished respectively in white, red, blue and dark green. Two have divided seats and the other two single seats for two passengers. Two also have luggage hampers strapped onto the body back of the seats.

MAIN EXHIBITION HALL OF THE COLISEUM—SOUTHERN PORTION WITH PORTALS LEADING IN TO THE ANNEX.

Adjacent to the Franklins the company shows four long-distance cars, two of the 12 horse power double-cylinder vertical motor tonneau type, one with the tonneau seats removed and body cover in place, and two of the 7 horse power, single-cylinder, horizontal, motor-back style, one with dos-a-dos seats attached. These four machines are finished respectively in automobile red, dark green and canary

yellow, making a striking exhibit. In addition, one of the single-cylinder motors, a transmission gear, and a carbureter, are arranged for inspection on a stand.

The only car of the Smith & Mabley line exhibited by the Temple & Austrian Co. is the little Panhard fitted with the orange and black finished aluminum body, with interchangable tonneau seats and tapered back, made by Quinby & Co., of Newark, which formed a feature of the Smith & Mabley display at Madison Square Garden.

Across the aisle the General Automobile and Manufacturing Company shows two of its General gasoline cars, with and without tonneau body portien attached. One is finished in black and the other in red.

WINTON CAR EXHIBIT.

Here, as everywhere, the display of the Winton Motor Carriage Co. draws a great many interested spectators, who come to inspect and to admire. Two complete tonneau cars of the 1903 model and the chassis of the same model, painted with pegamoid and showing the disposition of the two-cylinder, opposed, horizontal motor and other parts of the power plant, transmission and control, comprise the whole exhibit, although a space half as large as that of the International or the Electric Vehicle Co. is occupied. One of the finished cars has the tonneau seats attached.

Confronting the main entrance to the building at the right are two brilliant red tonneaus of the F. B. Stearns Co., one with large rectangular hood of Mercedes pattern and the other small and curved convexly at the top and concavely on the sides. Both these cars have horizontal motors placed under the tonneau end of the body, although the larger car is of distinctly foreign motor-in-front pattern. They are good representatives of adherence to the American motor and transmission system, with a concession to foreign frame construction and general appearance.

Another prominent exhibit in the center of the main hall is that of the National Vehicle Co. The most striking car in this display of electrical machines is the new so-called "Long Distance" vehicle, with polished brass hood resembling the gasoline cars. Other National Electric models are one runabout, one buggy-top runabout, one top road wagon, one Stanhope and one dos-a-dos.

The National company is unable to show its most recent product, because it is still in the paint shop. This is a 15 horse power gasoline tonneau, with four-cylinder vertical motor at the front and slide transmission gearing, giving three forward speeds.

The luxurious electric carriages, as usual, win the affections of the women, and the handsome vehicles of the Electric Vehicle Co., the Waverley factory of the International Company and those of the Woods Motor Vehicle Co., are magnets for the feminine and much of the masculine portion of the crowds present. The Electric Vehicle Co. has a large display that includes a Columbia light electric runabout, a Mark XXXI runabout, a Victoria, with divided batteries, a surrey, a cabriolet, a rear driven coupe, a straight front brougham, and a 2 1-2-ton electric truck.

In the Waverley exhibit are a light road wagon, a road wagon with top, a surrey, a Chelsea, a stanhope, an electric delivery wagon and a new electric tonneau never before shown.

The display of Woods electrics is imposing also. It includes a spindle seat light road wagon, a folding top stanhope, a rumble seat brougham cab, a doctors' coupe and an extension front brougham.

The Mobile stand, which, with its colonial white columns surmounted by electric lights, was one of the most striking features of the Madison Square Garden show, is conspicuous only by its absence.

The illuminated signs include the Columbia, Toledo, Waverley, Locomobile, Oldsmobile, Rambler, Franklin, Woods, Searchmont, Thomas, National Automobile Co., Mitchell (Green), Stevens-Duryea, Thomas, Stearns (Red), Dasey & Co., Winton, Goodrich, Shelby Tube, Firestone tire and Goodyear tire.

WELDED PRESSED FRAMES.

On Tuesday the Electric Welding Co. will place on exhibition the first American pressed steel frame, electrically welded, that has ever been publicly exhibited. Each side bar is made in three parts, the middle section of straight channels and the end sections of tapered rolled or pressed sheet metal, the three welded into one integral piece by the electric process. This construction permits of making the middle section of any desired length to give any wheel-base wanted. And the frames will be made of metal 5-32 to 3-16 inches thick, with channels 2 1-2 to 4 1-2 inches wide for cars of different weights. The ends can be curved as desired to meet the spring mounts. The Standard Company is now making a frame of this type, similar to the foreign frames, for the special racing car that H. S. Harkness is having built for the Gordon-Bennett cup race. It has already made propositions to nine American automobile manufacturing companies to supply them with this style of frame.

Later Advices.

Staff Correspondence.

CHICAGO, Feb. 17.—Even as early as Monday forenoon signs of "Sold" began to appear on some of the machines, and their number increased during the remainder of the day, while many sales were made of which there are no visible indications. There was a good "buying attendance" during Monday forenoon, and there is a story current of two ranch owners from Idaho and Wyoming who bought an automobile apiece and several motor bicycles, the former for use on the long runs of about seventy-five miles from the ranches to the railroad stations and the bicycles to be used about the ranches on the sheep and cow paths.

The blizzard of Sunday and Sunday night having abated, leaving nothing more serious than snow drifts and cold wind, the attendance Monday evening was quite as large as on the opening night. Meanwhile, over Sunday and on Monday morning, most of the exhibits that were not installed at the opening had been brought in, completing the long list of new vehicles for which this show is notable. The exhibition has also taken on a more finished appearance.

A notable feature is the number of châssis exhibited for inspection, almost all of the makers of complete gasoline vehicles having made a point of showing a typical car with body removed, while those who are not doing this have removed the back body covers, opened the doors of the hoods and in other ways exposed the mechanism to the greatest possible degree. There is no attempt whatever to conceal anything in construction. The greater interest is attracted to the machinery, because there is no restriction against the use of gasoline in the cars, so that a large number of exhibitors have the engines in operation.

A delegation of Chicago Aldermen attended the show Monday night and was met by a committee of the Chicago Automobile Club, which did the honors of the occasion.

New Cars at the Show.

MITCHELL, SR., AND MITCHELL, JR.

The Wisconsin Wheel Works, of Racine, Wis., shows automobiles for the first time, its products heretofore having been bicycles. Its automobiles are the Mitchell Senior runabout and the Mitchell Junior, the former a 1,400-pound car with single-cylinder, horizontal, two-cycle water-cooled motor and a hood front, and the latter a 650-pound machine with single-cylinder, four-cycle, air-cooled motor set at an angle of 45 degrees in front under a wire screen hood. The motor of the larger car, which develops from 7 to 7 1-2 horse power, is mounted within the body at the back in the usual way, with planetary change speed gearing on the crank-shaft and central chain drive to differential on the rear axle. The crank-shaft is encased and a pipe from it leads air under compression through the carbureter into the motor cylinder. A series of perforations in this tube admits fresh air for the mixture. Lubrication of the cylinder and shaft bearings is from a sight-feed oiler on the dash, with splash lubrication in the crank case. Circulation is forced by pump through a disc coil ra-

diator under the front end of the car. Control is by one hand lever, for slow and fast forward speeds, and by foot lever for reverse. Brake on the differential is operated also by foot lever. At the front of the seat is a small hand lever for compression release. Steering is by tilting hand wheel.

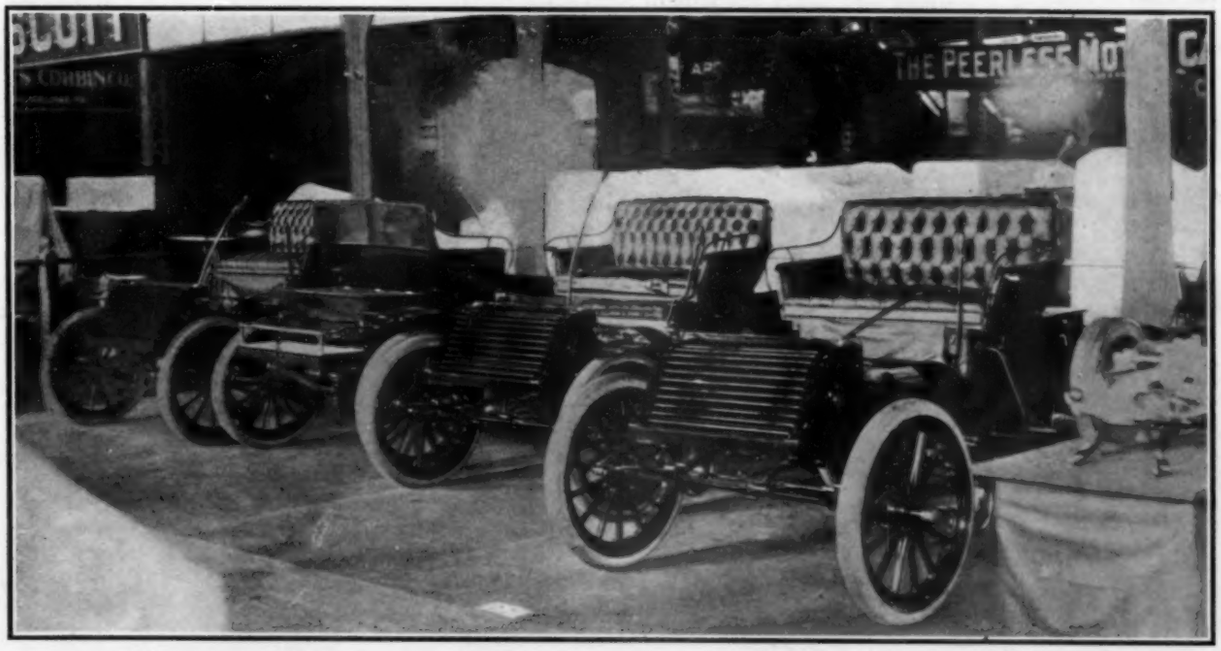
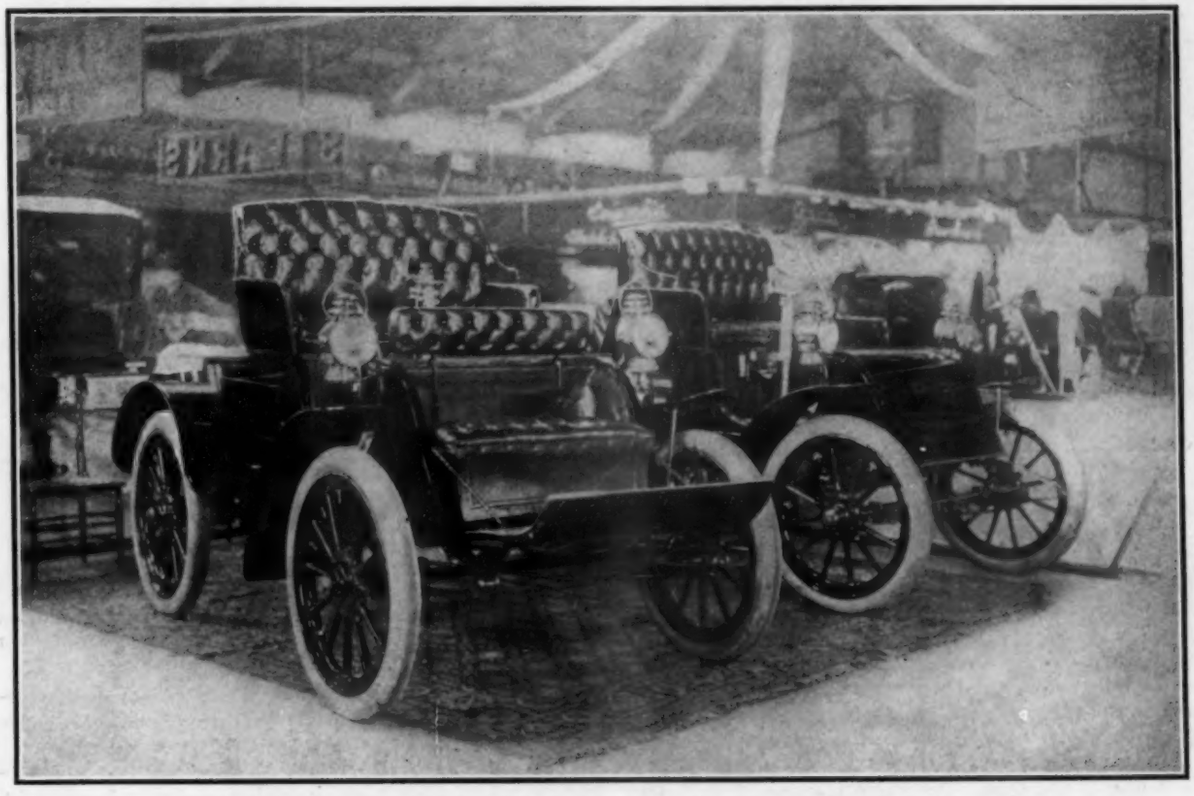


EXHIBIT OF THE FRIEDMAN AUTOMOBILE COMPANY'S FRICTION DRIVE GASOLINE MOTOR VEHICLES.

A châssis of the same car is also on exhibition. It has a 76-inch wheel-base and eight-ply side spring reaches. These springs are prolonged fore and aft of the axles and bent upwardly to connect with downwardly curved single-leaf springs at the front bolted to the angle iron frame, and three-leaf springs bolted to the frame at the rear. Links connect the ends of the rear springs. The water tank and battery are located under the hood. The seat tips forward on hinges, giving ready access to the motor and transmission. The gasoline tank is carried in the rear of the body at the side of the motor. The muffler is disposed longitudinally under the motor. Control of the car is at either right or left side, as desired.



UNION AUTOMOBILE CO. EXHIBIT AT THE CLEVELAND SHOW—FRICTION DRIVE GASOLINE CARS.

The 650-pound Mitchell Junior, with the 4-horse power air-cooled motor at the front, driven by chain to a counter-shaft under the footboard that carries a two-

speed and reverse planetary transmission gear, from which the drive is by center chain to the differential. Cooling off the cylinder head is aided by a fan journaled in a bracket riveted to the front bar of the angle iron frame and driven by belt from the left end of the crank-shaft. The motor is suspended in a cradle of angle iron riveted to the front of the frame and to a transverse bar under the dash. The bore of the cylinder is 3 5-8 by 4 1-4 inches, and the crank turns at 2,200 revolutions. The cylinder and the crank-shaft bearings are lubricated from a sight-feed oiler on the dash, with splash lubrication in the crank-case. The carbureter is at the right of the motor cylinder, and the muffler is placed just beneath the crank-case, pointing backward. The spark plug is in the center of the head

AMONG THE PALMS—CARS AND CHASSIS MADE BY THE FREDONIA MFG. CO.

cylinder. The flow of gasoline to the mixing valve is regulated by a hand wheel on the dash, and there is also a spark advancing and retarding device operated from the dash. The gasoline tank and the batteries are carried under the seat. The brake, on the differential, and the reverse and slow forward speed are all operated by foot levers, while the high forward speed is thrown in action by a hand lever at the right side of the seat. The frame of the car is carried on four full elliptic springs. Distance rods maintain the chain tension. The regular finish is blue body and red running gear and wheels. Wheels are of the wire suspension type, while the Mitchell Senior has tubular steel wheels of the artillery pattern.

NATIONAL "LONG DISTANCE" ELECTRIC.

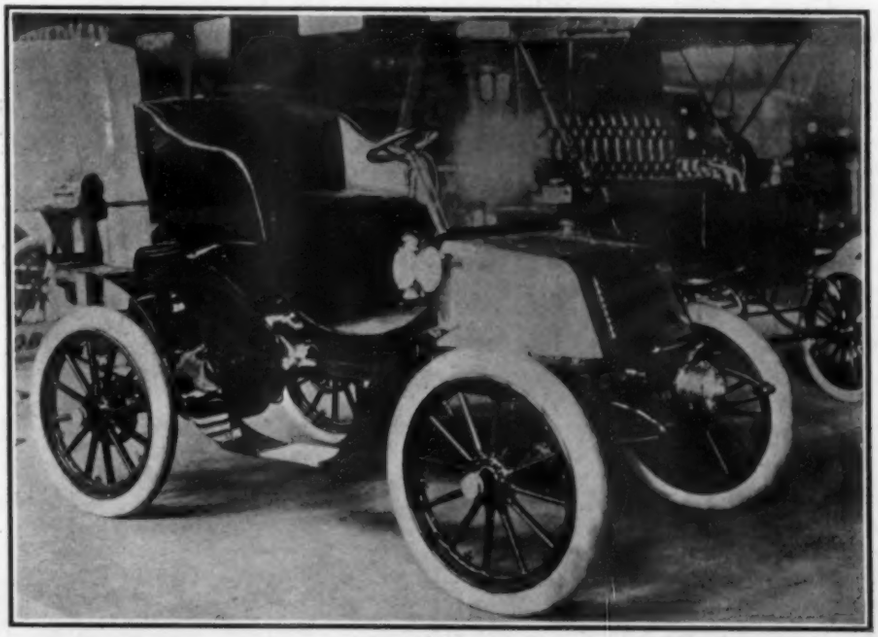
A new style of electric vehicle is shown by the National Vehicle Co., of Indianapolis, which exhibits as its latest model what it calls its "Long Distance" car—a 1,600-pound single seat vehicle, with a polished brass hood under which are carried half of the thirty-six cells of the Western Storage Battery Co.'s battery on which the car is calculated to travel 100 miles on one charge. The remaining cells are carried in the body at the back, thus distributing the weight evenly over the two axles. The motor is carried on the rear axle at the middle, and is encased together with the reduction gears in one cylindrical case. The brakes are on drums on the drive wheels, set by foot lever. By means of a button under the heel of the operator the current in the motor is reversed, turning the motor into a dynamo for and acting as a brake. Steering is by hand wheel. The frame is of angle iron, mounted on half elliptic springs at the front and full elliptic springs at the rear. The body at the back tapers from the top downward, and has rounded corners, presenting an unusual and graceful appearance. Full length fenders cover both wheels. Wheels are of the wood artillery type, 32 inches in diameter and fitted with 3 1-2-inch pneumatic tires. The finish is in automobile red with black trimming and black leather upholstering.

The present show marks the advent into the field of the National Automobile Co., of Oshkosh, Wis., which is on hand with two tonneau cars that will attract much attention. These are one of the very few Western makes of automobiles having multiple-cylinder, vertical motors located under the hood. The running gear, frame, power plant and transmission of the two cars are almost identical, except that one has a four-cylinder motor and the other a twin-cylinder engine, the former developing 16 horse power at 900 revolutions with 4 by 5 cylinders. The frames are of angle iron, transmission is by sliding gears and longitudinal shaft to the differential. The drive shaft is socketed at the rear of the differential yoke as well as at the front of the yoke, carrying the pinion between the journals or sockets. The bevel gear on the differential is backed up by an idle roller that absolutely prevents the springing apart of the gear and pinion. The shaft is provided with universal joints.

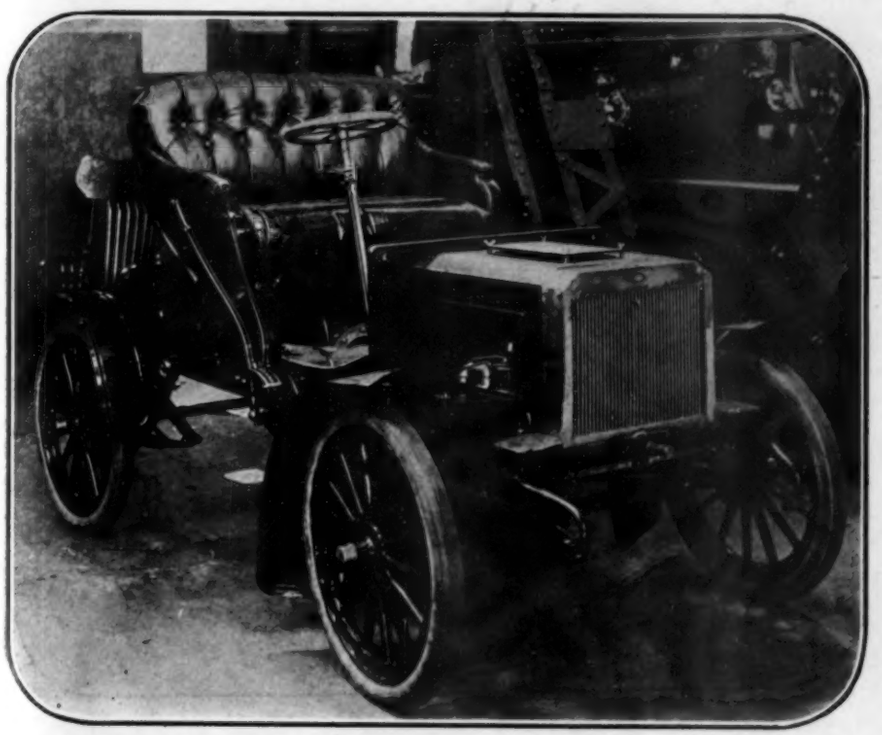
The motor cylinders and valves are enclosed in a rectangular water jacket of aluminum and the crank-shaft and piston rods are enclosed in an aluminum case having side plates that can be removed to give ready access to the interior. A special float-feed carbureter is fitted, with the admission automatically regulated by a centrifugal governor on the two-to-one shaft that operates the intake and exhaust valves, located on the same side of the

motor cylinders, by cams and rollers. The governor, time shaft gears, and spark timing device are also enclosed in an aluminum case. As all possible parts are of this light metal, the two-cylinder motor weighs only 250 pounds and the four-cylinder engine but 350 pounds. The cylinders are oiled mechanically, from a pump lubricator driven by belt from the flywheel, and the circulating water pump is driven by chain from the front end of the crank-shaft. The speed of the motor is governed by a foot lever that can be set at any desired position by means of a ratchet that is spring released. The clutch in the coned face of the flywheel is operated by another foot-pedal, while the reverse and brake are actuated by a third and fourth foot lever. A hand lever at the right of the seat is for setting the emergency brakes. There is but one set of brakes, on drums on the drive wheels, operated independently by the foot and hand levers. When set by either lever the clutch is automatically released. The speed gears are shifted by a handle on the steering column. The hand steering wheel tilts forward out of the way of the operator when entering and leaving his seat. The radiator on the 8 horse power car is of the usual disk coil type, but on the 16 horse power machine an original idea has been used. This consists of a series of twenty 1-8-inch brass tubes, each 25 feet long, bent back and forth across the front of the hood, the series being separated by thin brass plates bent zig-zag and inserted transversely in the radiator. The series of tubes are separated in the other direction by vertical wires. The water enters the radiator at the top and after circulating through the 500 feet of tubing, passes again to the small reservoir at the top, from which it flows directly into the water jacket again, no tank being used. The radiator holds four gallons of water.

The 16 horse power car has interchangeable tonneau and surrey seats, each 57 inches wide and very deeply upholstered. The body has original lines, being curved concavely on the sides at the rear. The finish is in automobile red, with black striping and red upholstering. The small car is finished in deep blue.



THE "NATIONAL" NEW STYLE ELECTRIC VEHICLE—SHAPED LIKE GASOLINE CAR.



MARBLE-SWIFT AUTOMOBILE CO.'S 8 H-P. FRICTION DRIVE VEHICLE.

The exhibit includes, in addition to the two cars, one each of the two- and four-cylinder motors mounted on stands for inspection, and the transmission system showing the change speed and shaft arrangement.

The National Automobile Co., which was incorporated last fall, has just secured the Pabst Building on Second Street, off of Grand Avenue, in Milwaukee, which it will occupy as factory and salesroom immediately following the Coliseum show, removing from Oshkosh. This is a four-story brick building having 15,000 square feet of floor space. One hundred vehicles like those on exhibition are now under construction in Milwaukee.

BARTHOLOMEW GLIDE MOBILE.

Another Western production that makes its debut for the first time at this exhibition is the Glide, a 6 horse power machine driven by a single-cylinder, four-cylinder horizontal motor, 5-inch bore by 6 1-2-inch stroke. It is made by the Bartholomew Co., of Peoria, Ill. The most novel feature of the car is the construction of the frame and springs, the body frame and the frame carrying the power plant being largely independent so as to give the maximum of flexibility without injuriously disturbing the alignment or relative positions of the working parts. The body frame under the forward two-thirds of the body is of wood, supplemented by flat iron strips at top and bottom, but the side bars end under the seat and are bolted to leaf springs extending backwardly and downwardly, passing under and back of the rear axle, where their ends are attached to links depending from the rear

ends of similar springs forming the sides of an independent U-shaped frame for the motor suspension. These second springs rest on spring blocks on the axle, inside of the main frame springs, and at their forward ends are riveted to the U angle iron, which is connected pivotally at its center to a transverse bar across the middle of the body frame. The motor, planetary transmission, gasoline and water tanks, Auto-Sparker igniter and Auto-Cell battery are carried upon this inside frame, which, by its pivotal connection permits almost any degree of flexion in the body frame without disturbing the alignment of the motor shaft and live axle.

Other special features of the Glide Mobile are that the seat tips forward on hinges, giving easy and full access to the whole power plant, that the body can be removed, leaving the foot-board, with its pedal levers, steering tiller and other parts and connections intact, that there is a small muffler on the intake as well as one for the exhaust, and that the valves and sparker are mechanically operated from opposite ends of the two-to-one shaft, which is driven by a helix gear that is in mesh with two teeth on the pinion at the same time, thereby preventing rattling. Circulation is forced by rotary pump through a plain tubular radiator hung partially below the front of the curved dash, which is used only for the storage of clothing, tool kit and extra parts.

A new and exclusive feature is an eccentric steering device that is irreversible and prevents the tiller being jerked out of the hand when the wheels strike an obstruction. To the end of the vertical tiller post below the footboard is keyed an eccentric disc about 3 1-2 inches in diameter, lying horizontally and rotating in a plate attached to the lever rod connecting with the steering knuckles.

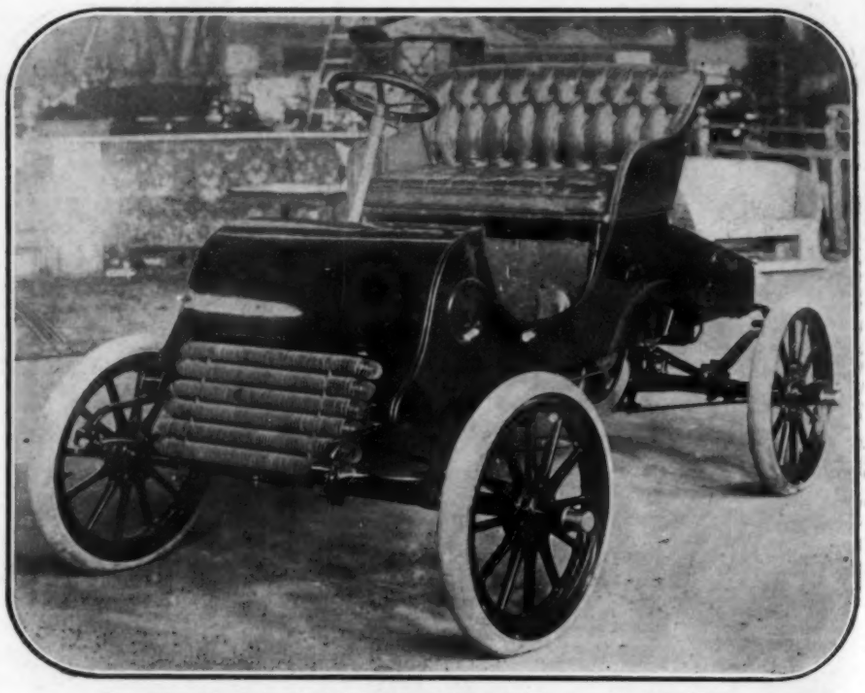
The rear of the body is designed to take a dos-a-dos seat, which is identical with the front seat, but reversed and fastened to a board that serves as the cover of the body itself and sets down flush with the tops of the body sides, preventing the accidental displacement of the auxiliary seat.

The cars have long wheel-base and three-quarter elliptic springs at the front. Wheels are of wood or wire, 32 inches in diameter, and fitted with 3-inch pneumatics. Three cars are exhibited.

PHOTOGRAPHER "CATCHES" DESIGNER OF "GLIDE MOBILES" OILING HIS BEARINGS.

"CALORIC" MOTOR AND CAR.

First honor for novelty is divided between the Marble-Swift Automobile Co. and the Chicago Moto Cycle Co., both Chicago manufacturers. The exhibit of the latter concern, located in the annex just in front of the entrance from the main hall, is spectacular and draws large groups of spectators. Its display comprises one complete runabout, one three-cylinder "hot-air" engine mounted and in operation on a stand, one similar engine with a segment of one cylinder cut away to show the action of pistons and exhaust valves, and one two-cylinder vertical marine engine of the same type. These engines have twin or triple cylinders of double the usual length and offset below the crankshaft so that the crank ends of the piston rods never pass below the axial centers of the pistons. Each cylinder encloses two pistons, a supplementary piston occupying the elongated head of the cylinder behind the regular piston and having a reciprocating piston rod that penetrates the center of the regular piston and is slidably held in a guide at the opposite side of the crank case. Surrounding the heads of the three cylinders, which are of the fin air-cooled type, is a burner chamber having a Bunsen burner below and a short draft opening above. This burner is started by the use of a small quantity of alcohol poured in a little trough under a generating tube on the extreme head of the engine. Either gasoline or kerosene is used for fuel in the burner and for explosive mixture in the cylinders.



THE CADILLAC GASOLINE ROAD WAGON—CAN BE FITTED WITH TONNEAU.

When the cylinder heads have been brought to sufficient heat by the burner the flywheel is turned over and fuel and air are drawn into and mixed in one of the cylinders between the two pistons, which move in opposite directions. When a full charge has been received the pistons move toward each other, compressing between them the gas which, as the pistons approach each other closer and finally meet, is forced through a series of grooves in the wall of the secondary piston and under a piston ring into the extreme head of the cylinder, toward which both pistons have meanwhile moved together.

The heat of the head causes ignition of the charge and the explosion drives the two pistons outward together to the end of the stroke. The exhaust valve is then opened and the secondary piston starts its reverse movement while the piston rod of the primary pistons is at dead center, clearing the cylinder of burned gasses and drawing in a fresh charge between the two pistons. Thus this is a four-cycle engine operating two-cycle.

The peculiar action of the two pistons is obtained by the manner of connecting the piston rods to the cranks, the sliding rod of the secondary piston having a link at its outer end that reaches back to connect with the crank bearing of the primary piston rod.

The engine has no carbureter, no intake valves and no sparking device. After the motor has been running awhile the burner can be turned out and the explosions will keep the cylinder heads sufficiently hot for spontaneous ignition, it is explained. The three-cylinder engine, weighing 275 pounds, developes 6 1-2 horse power.

The vehicle on display is equipped with one of these motors disposed horizontally in the rear of the body. The car is an 850 pound runabout, with a front hood for all the world like the snout of a shovel-nose shark, having a semi-circular curve at the dash and sloping down to meet the front of the frame in a broad, flat edge rounded off on the corners. Others compare it to the more familiar toe of a shoe. The motor is a twin cylinder engine of 4 1-2 horse power. Spur gear speed mechanism on the crank shaft under the seat gives three speeds forward and reverse, and the engine can be slowed down to very slow action. The Chicago Moto Cycle Co. is building a similar car with three-cylinder motor that will weigh 1,100 pounds. The builders assert that the small machine has been driven to Milwaukee and return (175 miles) on a consumption of 9 1-2 gallons of gasoline.

PART OF RALPH TEMPLE & AUSTRIAN'S EXHIBIT—SHOWING FRANKLIN 4-CYLINDER AIR COOLED MOTOR CARS.

MURRAY MOTOR CARS.

Two 4 1-2 horse power Murray runabouts, built by the Church Manufacturing Co., of Adrian, Mich., are shown in the annex by the Mead Cycle Co., of Chicago, general agents. These machines, while they have been before the public and in the market for more than a year, were not on exhibition in the East nor at the Cleveland or Detroit shows. They are of the single-cylinder, horizontal, four-cycle motor type, with leaf springs connecting the axles. The power plant, with planetary transmission system, is carried on the angle iron rectangular frame, but the body is hung to this by a turn bolt or pivot at each side, the front end resting on a light transverse elliptic spring over the front axle, giving three-point suspension. The water tank is under the footboard just back of the disc radiator. Steering is by side tiller. This year's car has a larger muffler and runs more silently than last year's model, and the starting crank is detachable while last year it was made integral with the shaft.

WAVERLY ELECTRIC TONNEAU.

A brand new product from the Waverley factory of the International Motor Car Co. is a 2,000-pound electric tonneau type car with 88-inch wheel-base, double motor drive to the two rear wheels, and three trays of battery carried under the hood and one tray under the front seat. The car has polished brass fenders and is fitted with 30-inch wood wheels, and two parabolic head lights and two side lamps. Steering is by wheel with worm gear, and is so easily manipulated that the car can be run with ease by a woman

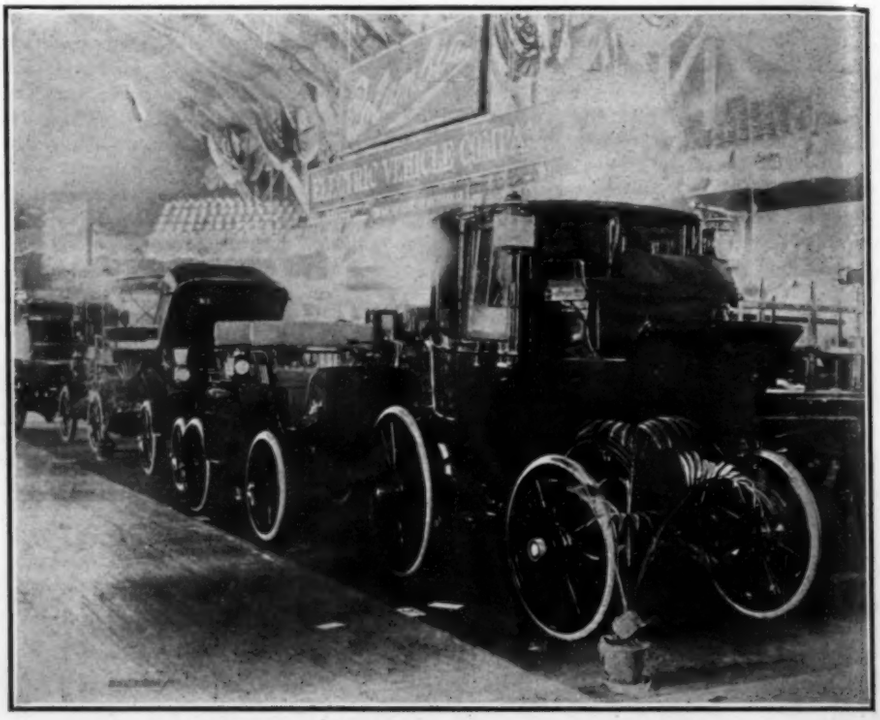
who would hesitate to attempt to run the larger gasoline or steam machines. The car has a maximum speed of eighteen miles per hour, and a radius of fifty to sixty miles on one charge at this rate on good roads. The batteries are rendered very accessible by raising the hood and the front seat. The long wheel-base, reachless running gear and long semi-elliptic springs on which the ash body frame, braced with angle iron, is carried, makes this a very easy riding car.

WELCH TOURIST CAR.

A tonneau car that has perhaps more novel and apparently excellent features than any other is the Welch Tourist, built by the Chelsea Mfg. Co., of Chelsea, Mich. The one machine shown is exhibited for the first time, having been hurried to this show even before completion of some of the minor details. This is a 20 horse power car, equipped with a twin-cylinder vertical motor placed under the bonnet at the front. The motor has spherical explosion chambers, two inlet valves for each cylinder, each of 1 1-4-inch diameter, exhaust valves 1 3-4 inches in diameter inverted in the centers of the heads and mechanically operated by cams on a rotating disc between the cylinder heads turned by a worm gear in the crank case on the lower end of a rod passing down between the cylinders. A fan journaled in the water jacket at the front of the motor, just back of the radiator, is driven by belt from the front end of the crank-shaft. The fan shaft also carries a centrifugal governor for the mixture, while the sparking is automatically regulated by a centrifugal governor on the crank-shaft. Throttle is operated both by foot lever and by hand.

The radiator is of true honeycomb type, the tubes being hexagonal and having their ends swaged so that when soldered together there is a space only 1-32 of an inch thick between the tubes for the water to circulate through. With this radiator no water tank is employed and the circulation is thermal or without pump.

Drive is by longitudinal shaft to the rear axle, without the interposition of any speed change gears. The system is one of the most radical innovations for which this machine is notable. The drive shaft passes entirely through the differential gear casing on the rear axle, running on ball bearings at front and rear. Drive from the shaft to the axle is by helical gearing, one worm gear carried on a sleeve on the end of the shaft, meshing with the gear on the axle at its top, while a similar gear, on a vertical pin under the shaft, meshes with the axle gear at its front side. The shaft of this second worm gear carries at its top a large bevel gear disposed horizontally and having in mesh with it two pinions on sleeves on each drive shaft, one at each side of the bevel gear. The separate sleeves on which these bevel pinions are mounted are also provided with clutches by which they can be locked independently to the drive shaft. Clamping one to the shaft diverts the power through the large bevel gear and its worm gear below to the helical gear on the live axle, giving slow speed forward. Releasing this and clamping the other bevel pinion at the opposite side of the periphery of the large bevel gear reverses the wheels. Releasing both of these clutches and locking the sleeve at the end of the drive shaft that carries the worm gear above the axle gear, gives direct forward drive on the high speed, the other gears remaining stationary. The three clutches are operated by one lever at the side of the car. This lever slides a rod that telescopes into the drive shaft from the rear end and carries cam rings at different positions for the respective



THE ELECTRIC VEHICLE COMPANY'S "COLUMBIA" EXHIBIT.

ONE OF THE FEW FRENCH CARS—DARRACQ.

clutches. All of the transmission mechanism is enclosed in a single casing on the rear axle. Complicated as this arrangement may seem from so condensed a description, it is in reality simple and effective.

Still another innovation, seen on only one other vehicle at this show, and never observed at any previous one, is a telescoping steering mechanism. In the Welch car the steering post is placed at a very acute angle to the frame of the car, the lower end of the steering rod emerging below the frame just over the front axle, where a bevel pinion on it meshes with the segment of a bevel gear having a depending arm that is directly connected to a rod whose other end is pivoted to the left steering knuckle, turned forward. The hand wheel is carried on the end of a tube that telescopes with and slides in the fixed steering post. The telescoping tube has an expander at its lower end which is tightened by a small lever in the center of the hand wheel, locking the two tubes together at any position of the wheel desired by the operator. Thus the operator can regulate the position of the steering wheel to suit his physical build, and can also push the wheel to its lowest and most forward position out of his way when leaving and entering the vehicle.

The muffler, too, is of special construction, being dome shaped with perforations in its periphery. It is located under the left side of the car below the front seat.

Another feature is that, instead of having a door in the middle of the tonneau back, the tonneau is divided in the middle, each side, with its seat, being attached pivotally at the front so that the rear can be swung outward, the two halves separating at the back to form a door. This movement is accomplished by means of hand cranks at the tops of the seats, actuating toggle links beneath the seats.

KAMMANN MFG. CO., "JACK FROST" CAR.

AMERICAN MACHINES IN MALTA—PRACTICAL HINTS TO MAKERS.

The U. S. Consul at Malta, John H. Grout, sends the following report on the demand for American cars in the Island. His suggestions as to quotations of prices, information as to shipment, etc., are well worth the attention of manufacturers, as they apply equally well to other foreign countries. It is evident that to attract the interest of foreign buyers the information furnished them must be complete and self-explanatory, giving as nearly as possible the complete cost at final destination rather than at the factory some thousands of miles distant. The report is as follows:

"I have recently received applications from parties here for information with regard to the advantages of the American automobile. There are already several in use, and correspondence is now being carried on between probable purchasers and American makers. One gentleman recently went to England and, after looking at the various makes of machines there, ordered one of American origin, which is giving good satisfaction. This machine is of the steam variety, being the only one of its kind here. The others are operated by gasoline. One firm desires to secure large vans for delivery of goods. No fault is found with gasoline machines except that it is somewhat difficult at times to procure gasoline, on account of local laws. It is imported from New York and other places, but the supply is apt to be limited.

"American manufacturers of automobiles should bear in mind that Malta does not possess, as a rule, long, level stretches of road. There are many steep hills—some of them having a grade of 1 in 9. The machine should be much more powerful than is the rule in the United States.

"Another thing to be remembered is that, in giving the price, the manufacturer must quote f. o. b. New York; otherwise the inquirer will not know what his machine is going to cost him. People here know nothing about distances or freight rates between ports of shipment and our interior cities. Several negotiations have failed because the dealer in the United States insisted upon quoting prices f. o. b. Chicago or other place of export.

"When possible, it is even better to give prices c. i. f. Malta. In other words, when the buyer at Malta writes for terms, he should be given information which will enable him to figure exactly what the machine will cost him, landed here. If information as to the cubic measurement of the machine as crated or boxed for shipment can be given, it will add to the satisfaction of the buyer. Some time ago, an American carriage manufactured in one of our interior cities was sold here, and, to my own knowledge, one of the greatest points considered was the completeness of the information given in the catalogue. I provided other catalogues, which were prepared in attractive style and showed desirable goods, but information as to terms, etc., was very meager and they were not considered. It must be remembered that transportation from New York to Malta is now ample by way of a direct line of steamers. My assortment of automobile catalogues is somewhat limited, and I should be pleased to receive such as manufacturers may see fit to send me."

Endurance Run in California.

Special Correspondence.

SAN FRANCISCO, Feb. 7.—The Automobile Club of California is talking of holding an endurance run round the Bay of San Francisco in March. It is proposed to start from Oakland and run to San José, returning thence to San Francisco, making the circuit of the bay and covering 100 miles. G. A. Boyer, of the National Automobile Company, is devoting much time and energy to the project. It is expected that fifty cars will be entered. Cups have been promised by E. Courtney Ford, the vice-president of the Automobile Club of California; G. A. Boyer, and Charles E. Linaker. Gasoline cars must complete the trip without stop, while steam rigs will be permitted three stops to take on gasoline and water. The rate of speed must not exceed twenty miles per hour.

Some Features of the New Mercedes Cars.

Though great secrecy is observed with regard to the 80 horse power racing cars which are now being completed at Cannstatt, Germany, for the races at Nice, in March and April, some information bearing upon the construction of other new Mercedes models is now obtainable and applies, it is believed, at least in part, also to the racing cars. The Cannstatt-Daimler Company, whose every move is now followed with zealous and anxious attention, has prepared to place four new models in the market, varying in size, weight and power, but similar in design and mechanical details. The illustrations and the description given in the following refer to these cars, which are after all of more interest to the general public than the racing machine. The four models are of 18, 24, 40 and 60 horse power.

The principal new features are:

1. All the gear speeds, including the reverse, are obtained one after the other by pushing the lever forward in *one* guide slot in the quadrant.

2. The clutch mechanism is entirely remodelled.

3. The ventilating fan in all models forms part of the flywheel and surrounds the clutch.

4. Admission valves, still mechanically operated, are placed in the top of the cylinder head.

5. Each cylinder has two spark plugs, one for ignition by battery, the other for magneto ignition, and both on the face of the cylinder.

8. Pressed steel frame lightened and strengthened; rear axle T shaped instead of round and tubular.

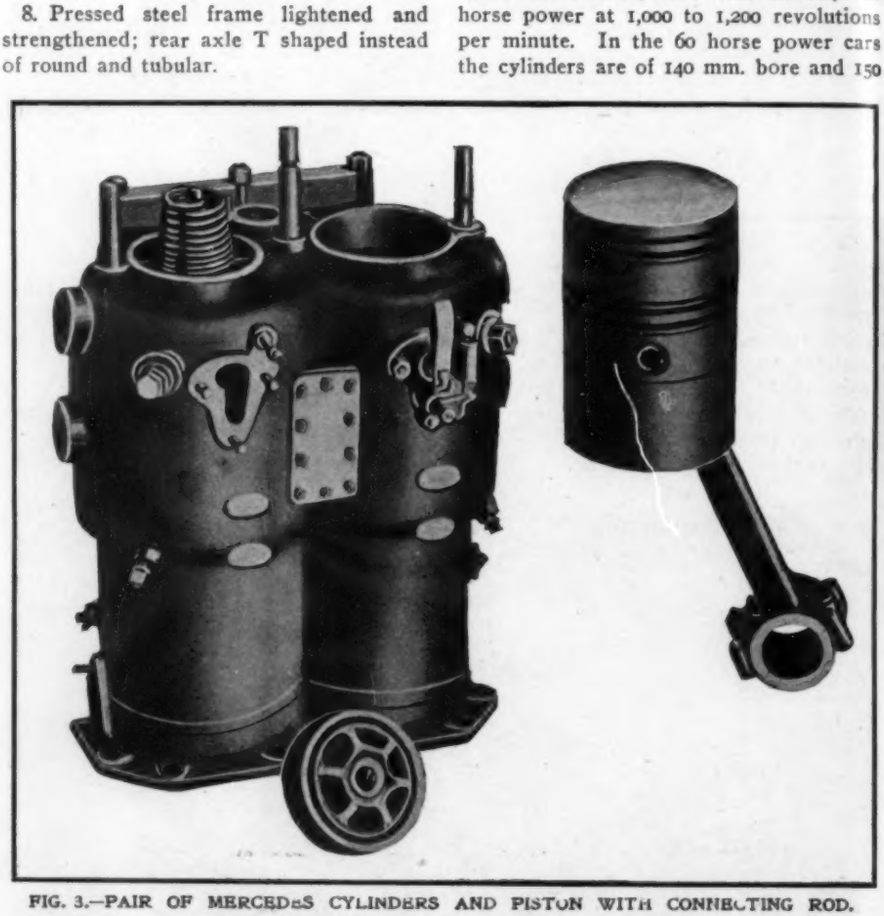


FIG. 3.—PAIR OF MERCEDES CYLINDERS AND PISTON WITH CONNECTING ROD.

About the six racing machines which are being built it has become known that the large four-cylinder engine will have the same piston stroke as the smaller engines, so as to keep the piston speed within bounds at a somewhat increased number of shaft revolutions. The cylinders will be of 170 mm. bore by 150 mm. stroke, giving a cylinder volume of 3,404 cubic centimeters, and will develop 80 horse power at 1,000 to 1,200 revolutions per minute. In the 60 horse power cars the cylinders are of 140 mm. bore and 150 mm. stroke, so that there seems to be no reason to believe that the Cannstatt people prefer the very short stroke in any but the most powerful machines in which fuel economy is a subordinate consideration. The 40 horse power car of the 1902 model has 118 mm. bore by 150 mm. stroke. What

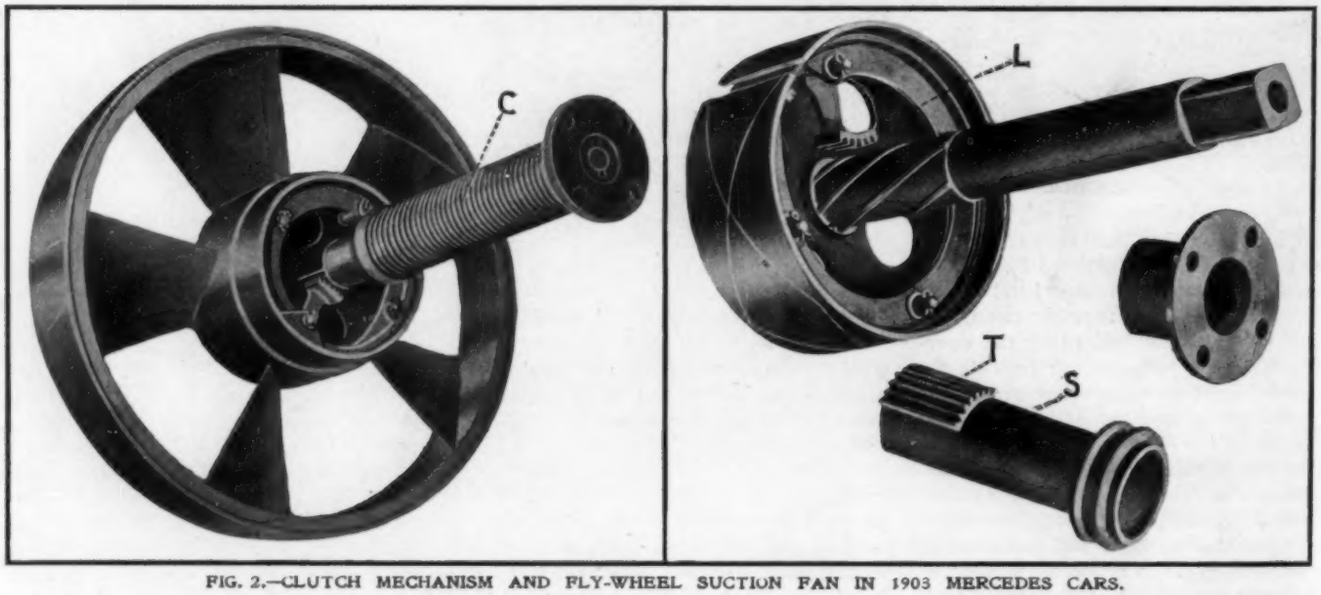


FIG. 2.—CLUTCH MECHANISM AND FLY-WHEEL SUCTION FAN IN 1903 MERCEDES CARS.

6. A new carbureter or reduced dimensions.

7. A new radiator with 5,000 tubes instead of 3,000, but not of increased dimensions.

the corresponding dimensions are in the 18, 24 and 40 horse power cars of 1903 does not seem to be known as yet, but taking the new 60 horse power car and the racing machines as criterions, it may perhaps be taken for granted that the stroke is 150 mm. in all of them, the power being varied entirely by the diameter of the cylinders. This method would involve fewest complications in adapting the motors to the transmission gears and frames, rendering it possible to use the same patterns for most of the details in the cars irrespective of their variation in power capacity. For the same reason the adoption of this system does not necessarily indicate that the selected dimensions represent what has been found most efficient, but perhaps rather a compromise with manufacturing requirements.

The new 18 horse power car, fitted with tonneau body, will weigh, all told, 750 to 800 kilograms, or 1,650 to 1,760 pounds.

Of the changes in construction noted above No. 1 is probably of most importance to the drivers of these machines, as it means a considerable simplification of the movements by which gear changes are effected. It also means that the Cannstadtt constructors have recognized the superiority of some of the French and American cars on this point. But their mechanism is novel. The sliding gear shaft is no longer shifted from one position to another by a forked shifting lever, but by a vertical rotative disk (D in Fig. 1) whose inner face is shaped with two spiral, grooved cams. Each of these cams actuates two of the speeds, successively, and the disk shaft is rotated from a pinion meshing with a toothed segment connected to the operating lever. The mechanism and the shape of the cam-grooves are so proportioned that a continuous forward or backward motion of the operating lever in one guide slot in the quadrant successively applies the reverse, the low, the medium, the medium high and the high speeds, or *vice versa*; that is, without change of the lever from one slot to another.

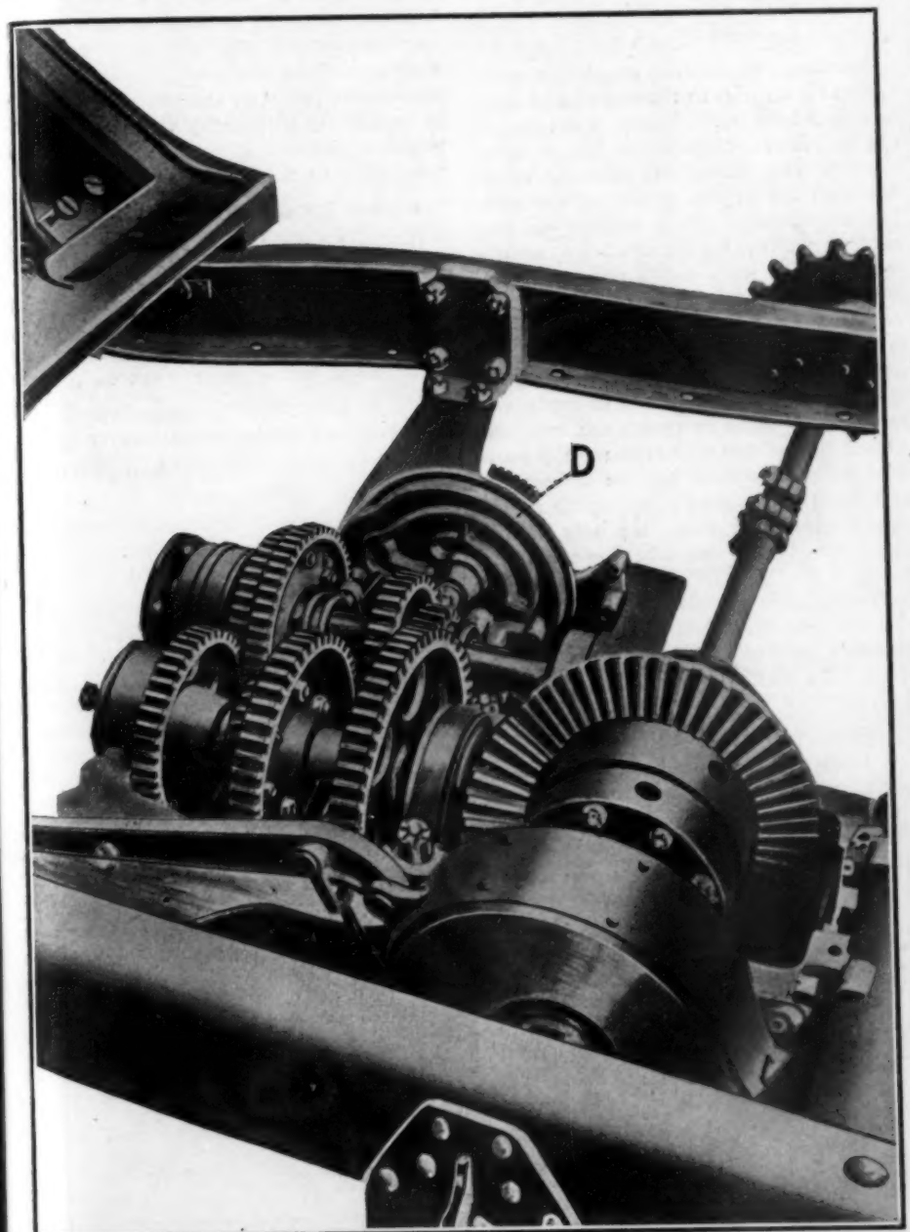


FIG. 1.—VARIABLE GEAR WITH CAM DISK OPERATING THE SPEED CHANGES.

Change No. 2, relating to the clutch, is also radical. The clutch is located centrally in the flywheel-ventilator, as shown in Fig. 2. (By this arrangement the draught induced by the fan is incidentally rendered more positive.) A steel band is expanded against the inner wall of the flywheel hub by means of a cam-lever. The long arm of this lever extends toward the clutch shaft and terminates in a toothed segment (L), which meshes with the toothed front portion (T, Fig. 2) of a sleeve (S) on the clutch shaft. The sleeve has spiral rifle lands internally, corresponding to rifle grooves in the clutch shaft, so that the sleeve is rotated somewhat when drawn back by the clutch spring (C, Fig. 2). By pressure on the clutch pedal this action takes place, and the clutch is locked. When the pressure on the pedal is released the spring pushes the sleeve forward and releases the clutch band also.

Fig. 3 shows the admission valves, of very large size, directly in the center of the cylinder head. One of the valves is shown in its position and with the valve spring, but it is understood that the opening of the valves is mechanically operated. The other valve lies, bottom-side up, at the foot of the two cylinders (which are cast in pairs). On the face of the cylinders are seen the spark plugs, which were formerly on the side of the cylinders (between the cylinders in the four-cylinder motor). Adjoining these are the openings intended to receive the spark plugs of the new Bosch magnetos.

The new carbureter, which has been announced, is said to allow the motor to be run at even a slower speed than last year's pattern, but no details of its design, have been made known, owing to pending patents.

The "Circuit des Ardennes," the road race on the Belgian frontier, which was such a success in 1902, will be repeated this year, probably on July 19. It will be run under the rules of the A. C. F., but one or more special classes will be added, based on the cylinder dimensions of the motors. Two members of the racing committee of the French Chambre Syndicale have been appointed to arrange the details of this new classification.

Baron Henri de Rothschild proposes to spend a part of the present month in touring in Algeria, taking with him two cars of 40- and 28-horse power respectively.

Foreign

FOUR MILES OF STANDS AT CRYSTAL PALACE SHOW.

WHOLE BRITISH INDUSTRY THERE.

London Correspondent Finds Interesting Departures from Customary Construction at Gigantic Gathering of English, French and American Automobiles in the Old Exposition Building.

Staff Correspondence.

LONDON, Feb. 5.—The automobile exhibition which opened last Friday at the Crystal Palace is the biggest thing in automobile shows which has occurred up to date on this planet. The Paris show, which has been so thoroughly illustrated in THE AUTOMOBILE, certainly looked better from either floor or galleries, but that was due to the design of the building and not to the exhibits, staging or their stand signs. The Crystal Palace, on Sydenham Hill, England's great glass house, is the identical building that covered the exhibits of the great exhibition of 1851, the parent of all international exhibitions. This unique building was constructed from the designs of Mr. Paxton, who had erected some very large conservatories at Chatsworth on the same lines some time before. After it had served its purpose in London it was purchased by a company and re-erected on the heights of Sydenham, overlooking London from the southeast.

FINELY FINISHED FRAMES.

The present show has received the support of the whole trade with but few exceptions, and so greedily has the space been seized upon that the frontages of the stands added together measures hard upon four miles. It surpasses the Paris show in interest for the reason that not only are nearly all the interesting cars and chassis which were to be seen in the Grand Palais now on view at Sydenham, but many vehicles of English and American make quite equal to the best French makes in thoughtful design, finish and turnout are also to be seen. For instance, the chassis of the 16-24 horse power Ariel, built by the Ariel Motor Company, of Componentsville, Birmingham, is admitted by all those who have seen both shows to be if possible superior in finish to the chassis of the Decauville and Darracq people which excited so much admiration at the Paris show.

FAITH IN HIGH-SPEED MOTORS.

The Ariel Company show chassis of both 16-24 horse power and 10-12 horse power cars, but it is the 16 horse power of which one speaks with special admiration. Certainly the frame is of tube, but tube so proportioned, disposed and strutted that there is nothing left to be desired. This firm pin their faith to small cylinders running their motor at very high speed, the same being most carefully balanced, so that engine motion is not felt by the passengers in the car. I speak from experience of a long ride in the first 16 horse power car built. The outside jump spark has been adopted, heat provision being made on the sparking plugs to allow of this. The friction cone clutch is independent of the flywheel, something after the style of the French Ader car.

APOSTATES FROM POSITIVE VALVE ACTION.

Another fine chassis which has come quite as a surprise to the majority of automobilists here is the Belsize, a car turned out by Messrs. Marshall & Co., of Manchester. The exhaust and induction valves are both set in the crown of the combustion chamber of the engine, and the exhaust valves are actuated by tappets worked by a shaft which rises from the cam shaft placed in the vertical plane beneath the engine shaft. The vertical shaft is made with a double loop to pass the engine shaft. Curiously enough this engine, which was first designed and made experimentally some two years ago, was then turned out and run with mechanically actuated induction valves, but the makers assert that they reverted to automatic actuation because they found the only advantage gained was somewhat quieter running.

Their engine is, however, so designed that the present induction valves can be operated mechanically by a slight alteration of the rocking levers, should this be desired.

BRAKING STRAINS NEUTRALIZED.

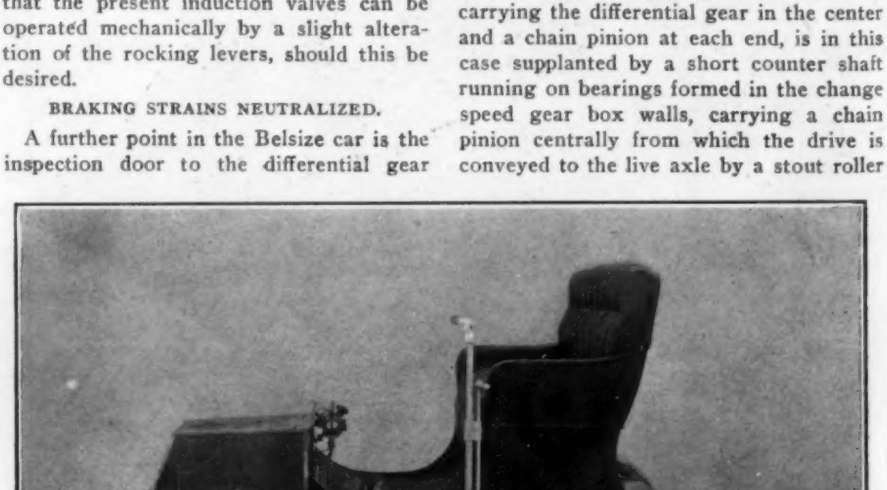
A further point in the Belsize car is the inspection door to the differential gear case enclosing the differential gear and live axle, which is ample in size and through which the condition of bevel driving pinion and the driven bevel toothed ring can be easily examined. Then again in the Belsize all breaking strain is removed from the change speed gear, propeller shaft or bevel grating to live axle, by fitting outside band brakes, and inside double expanding brakes to the brake flanges bolted to the spokes of the driving wheels. The latter brakes are actuated by a pedal from the footboard in the usual way, while the former are applied by side lever as usual. The brakes are both compensated by short-pitch chains, an improvement over the wire, or even rope sometimes employed. The frame is of the stamped steel channel type, and it is interesting to note by the evidence of this show, how rapidly the English makers are taking to this form of frame.

GUARDS 'TWEEN WHEELS AND BODY.

It would be well for those whose duty it is to clean cars after muddy drives if more makers took pattern by the Belsize and carried their mudguards down inside the wheels, for in a wet climate like this much labor and expense is saved to an owner by such fittings.

ENCASED SINGLE CHAIN DRIVE.

There is evidence at this show of a tendency on the part of some constructors to replace the propeller shaft and bevel gearing by a central chain of coarse pitch, and Messrs. Marshall & Co. show a 20 horse power car built on these lines. The long counter shaft running right across the car, carrying the differential gear in the center and a chain pinion at each end, is in this case supplanted by a short counter shaft running on bearings formed in the change speed gear box walls, carrying a chain pinion centrally from which the drive is conveyed to the live axle by a stout roller chain to a sprocket surrounding the differential gear or the live axle. This chain runs throughout in an oil-bath dust proof chain case.



MITCHELL 2-CYCLE ENGINE RUNABOUT AT CHICAGO SHOW

POWER TRANSMISSION DEVICES.

In two cases I found neatly constructed spring drives set between the clutch and the gear box. A driver, something like the driver used on lathes but with four arms, is fast on the clutch shaft, the arms carrying studs which make contact with plungers held up to them by stout spiral springs carried on lugs on a driven plate keyed to the forward projecting end of the primary gear shaft. By the interposition of this spring drive the engine takes up her load very sweetly and softly, without shock and without too much give, as stops are provided to take the plunger heads on the driven plate when the springs have been compressed to a certain degree.

THROTTLING, WITH CAM-OPENED VALVES.

A car shown by Messrs. Weller Bros., of West Norwood, people quite unknown in the automobile industry to date, is fitted with a four-cylinder engine with mechanically operated valves throughout, a single cam shaft actuating the lot. The method by which the explosive charge is throttled in this engine involves, however, the customary choking or contracting of the air conduit and is, to my mind, far inferior to the Chenard-Walcker system of sliding cams, which, while opening the induction valves fully in any case, shorten the time for which the valve is held open so that no choking of the charge occurs.

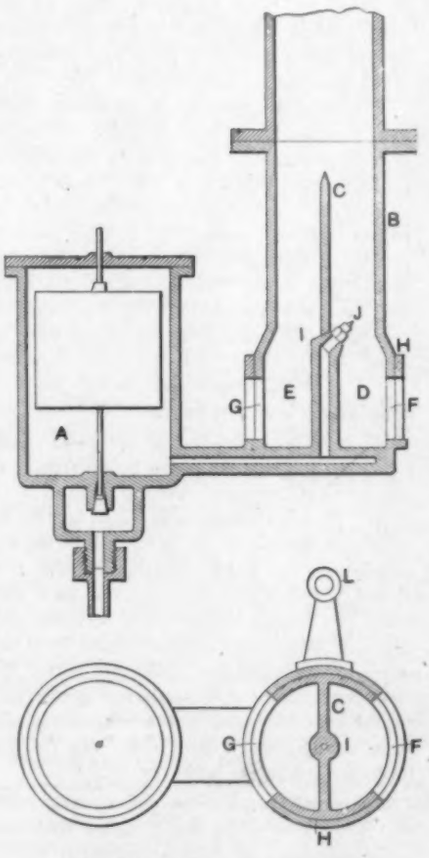
IMPROVEMENTS IN CARBURETTERS ON FRENCH MACHINES.

Staff Correspondence.

PARIS, January 30.—One of the most stirring developments in recent automobile practice is the carbureter. When makers found it necessary to slow down their engines to 200 revolutions a minute they had to provide a means of securing an absolutely uniform mixture which they had never been able to do with the old devices. As the suctional strokes drew in more or less gasoline with practically the same quantity of air a poorer quality of gas entered the cylinder, with a diminishing piston speed, until the gas failed to explode at all and the engine stopped. It was true that the admission of air was regulated by hand, but owing to the difficulty of getting an accurate adjustment the results were never satisfactory.

The first practical carbureter that aimed at giving a perfectly uniform mixture at all speeds—that is to say, fifteen parts of air and one of gasoline—was the Mercedes, which, like many other things in this remarkable vehicle, has been copied by nearly all the French makers. Panhard et Levassor got still better results with the Krebs carbureter, though in a more complicated manner, and now that the "compensating carbureter" has become an indispensable feature of the motor most of the firms are bringing out new devices with which they hope to attain the same end.

The new Mors carbureter is interesting on account of its simplicity. As will be seen from the accompanying plan and



NEW MORS CARBURETTER.

elevation it is composed simply of a constant level chamber and a vertical mixing chamber, the latter being fixed to the pipe leading to the combustion chamber. The mixing chamber is divided internally by a wall *C* and at the lower end are ports *G* and *F*, communicating externally and opened and closed by the ring *H*, actuated by the lever *L*, which in its turn is controlled by the governor of the engine. The gasoline is drawn up through the spray nipple *J* when it mixes with the air from *F*, and on rising above *C* the gas meets the air drawn up from *G*. It looks as if this division of the chamber has been made to secure a sort of forced feed, as it is probable that the rising of the light gas in *D* would cause a depression above *E* and thus facilitate the current of air. As the opening of the ports is varied by the ring *H*, and is reduced by the governor with the diminishing quantity of gasoline sprayed into the chamber *D*, the mixture is always kept uniform, and even when running at the lowest speed the gas is maintained at its maximum explosive force.

MM. Georges Richard have also devised a very simple type of carbureter which has only just come out of the experimental stage and has given such satisfactory results that it is likely to be fitted to all the firm's vehicles in the future. This also consists of a vertical mixing chamber in which an aluminum cone is kept down in its seat by a spring, this spring being, of course, nicely adjusted in proportion to the force of the suctional strokes. Around the seat of the cone are three spray nipples through which the gasoline is drawn from the constant level chamber. It will be readily understood that the suctional strokes as they draw the gasoline raise the aluminum cone more or less to admit air, so that here again the quantity of air is exactly proportionate to the quantity of gasoline.

Many other systems are adopted for attaining the same end, and singularly enough the principle is to be seen on the Ader cars where an automatic carbureter for obtaining a constant mixture has been employed for three or four years past. The Ader carbureter is of the wick type, the gasoline passing through layers of felt which are thus saturated, and the vaporized spirit mixes with air drawn through a large aperture closed by a plate which is kept up by a spring. The variation of the suctional strokes in overcoming the resistance of the springs results in a variable opening of the air aperture. Another ingenious carbureter is the Dewald, in which the air ports are closed more or less by a rubber diaphragm, this in its turn being given any required resistance by admitting air above it by means of a pointer on the steering wheel.

There are in fact many ways of devising compensating carbureters, and now that makers have seen the necessity of an automatic regulation of gas mixture the old type of carbureter has become a thing of the past. After all, the compensating carbureter is another illustration of the "eternal re-commencement" of things when old ideas are dressed up in a new garb, for practically the same results were obtained in the first types of carbureters that were ever used on automobiles.

In the "barbottage" system the air which has been previously warmed passes up through the gasoline and the gas mixture must therefore be always constant. The "barbottage" carbureter, however, has certain objections, notably in its large volume and the necessity of keeping the air at the same temperature, and the system has gone out of favor. It is now only used by Delahaye, who have stuck to it since they began building cars, seven or eight years ago, and there is no doubt that as regards its economy, reliability and adaptability to all kinds of spirit it has certain valuable points.

A law is proposed in Switzerland according to which, in case of accidents involving automobiles on one side, the civil responsibility rests on the driver of the automobile unless disproved. He has the burden of proof.

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SATURDAY, FEBRUARY 21, 1903.

CHICAGO'S SHOWING.

We hear from the Chicago show enough to convince us that the automobile heart is throbbing with strong and healthy pulsation in the western states. Our staff correspondents on the ground assure us that the spectacle presented in the Coliseum is inspiring in its totality and replete with interest in its details. The management of the show seems to have struck a note in its arrangements that reverberates in the industry and in the public—neither too low for dignity or too supine for popularity.

Only at two points is it discovered that the acceptance of the automobile idea as a full-fledged principle of vehicle traffic in all its forms, marches from East to West. It is stated that only two commercial vehicles are on exhibition, and that only three closed vehicles can be found in the whole array. Another year will doubtless witness a great change in this respect. The shortcoming is one that speaks of hurry and hustling for satisfying the most urgent demands first and of failure on the part of carriage makers to co-operate with the automobile industry. It should, perhaps, also be considered that in the West the ordinary automobile which carries two or more persons and nothing else, and establishes rapid individual communication between minor towns not connected by rail, is to a greater extent a "business vehicle" than in the criss-cross web of trolley lines and railways of New England. But on this very consideration the closed or closable automobile must eventually ride into high favor in western communities.

The simple forms of construction which are mentioned in our Chicago show report as prevailing, may not be taken as an indication of inferiority, but rather as the deliberate interpretation of local requirements and a reassertion of the western spirit, according to which the main thing is to "get there," while the precise form and manner by which the "arrival" is compassed is held to be of minor importance.

GOOD ROADS A GOOD LUXURY.

What is most needed in the good roads movement which seems to be so strong at the present moment—strong in endeavor if not in accomplishment—is a good, irrefutable argument in favor of large expenditures for road building. If the National Good Roads Convention held this week in Chicago contrives to advance any reasons which will actually convince the taxpayer that he can make no better investment than by assessing himself a round sum for road improvements, it will have accomplished wonders. We do not look for miracles, however.

Our small population per square mile, the large size of farms, coupled with the loose methods of cultivating them which still prevail, and the monopoly enjoyed by railroads in regard to long hauls, are factors which place almost insuperable obstacles in the way of the good roads movement, so long as its leaders choose to advocate it mainly on economical grounds. Wherever good roads have been established, there has been a dense population, close husbandry and a necessity for hauling produce or merchandise long distances, or else they have been created by the fiat of a military government. In those sections of Massachusetts, New Jersey and elsewhere, where good roads abound, they have sprung into existence as one of those luxuries which become a necessity in closely built-up districts where acreage is exceedingly high priced.

It may be doubted whether it is easier of accomplishment to wring the cost of good roads out of a sparse population owning low-priced property than to increase the population and its wealth and thereby bring about the natural conditions which make for goods road spontaneously.

With no desire to be flippant in the highly commendable cause which has gathered so many nice and prominent persons in its support, we venture to suggest that some of the most effective work for good roads might be done by taking part in every effort put forth for advancing the subdivision of property, scientific methods of agriculture and for increasing and diffusing the wealth of the nation. If this view should be adopted it will be seen that the good roads movement will at once be elevated to the highest possible plane of unselfish patriotism where it may engage the attention of statesmen and profound thinkers.

The field broadens by contemplation. We have a great many excellent roads, possibly more miles of them per capita than any other country, but unfortunately they do not belong to the people. They are railroads. If they did belong to the people the good roads problem would be colored with a new shade of meaning. Prosecute the thought, and immediately the nationalization of railways becomes part and parcel of the good roads question.

The good roads movement has a delightful breadth of scope. But great things move slowly. It is particularly puzzling how it can be raised rationally to a national rather than a local issue, so long as the long haul is distinctly monopolized by the owners of the excellent long distance roads, the railways.

At this point automobilism steps in and promises to increase the average length of the haul, thereby increasing proportionately the means by which the roads must be paid for. But this factor is still in the realm of speculation, and it remains doubtful whether it is better economy to build good automobiles for poor roads or good roads for poor automobiles—or whether perhaps the true solution lies in working the problem from both ends.

The status of the movement at present seems to be this, that everybody believes in good roads and nobody believes in paying for them, but, on the other hand, all believe strongly in persuading others that it would pay those others to pay for them. That is the sum and substance of the arguments advanced, and it is an unfortunate circumstance that, when the sums demanded are small—such as $5,000,000 annually for the State of New York—taxpayer Smith can see how he will be benefited, but taxpayers Brown and Jones, in another part of the township, cannot discover where they come in, and if the sums are large enough to put the good road before everybody's door, the rentability becomes doubtful to all. This Gordian knot needs to be cleft with a sword, but the edge of purely economical considerations seems too soft and dull for the task.

For all that, the good roads movement remains a highly meritorious manifestation of a general desire for ideal conditions, and one in which motorists must needs be deeply interested. Whether it can be advanced by meretricious argument on the economical side of the question seems much more doubtful.

A flood of ready-made "editorials" emanates at present from various good roads bureaus in form of printed slips, intended to be emulated by copy-hungry editors and served up to their readers as the product of their own cogitations on the subject, and it has never happened that any of these "inspirations" made frank avowal of the true nature of a good roads system as essentially a luxury for the nation and the State; a luxury in which we may well indulge and which, later, may even be found profitable, but which it is exceedingly difficult to defend on purely utilitarian grounds at the present stage of our national development.

With the American people daily comfort and pride in achievement play at least an equally important part, as compared with economy, as stimuli for action, and it seems by no means improbable that a good roads movement which would base its agitation on the value of good roads as a luxury—a means for raising our standard of living—would sweep the country and the legislatures with much more force and greater power to loosen purse-strings than the sickening, wire-pulling pseudo-economical bombast that now constitutes its chosen ammunition.

Uniform automobile traffic regulations for all cantons of Switzerland have been approved by the federal council at Berne and will therefore undoubtedly be adopted also by the various cantons. Heretofore some of the canton governments have absolutely prohibited automobiles and others have imposed severe restrictions. Newspapers in all of the United States and especially in New Jersey, will please copy.

In automobilism the intelligence of a constructor is not measured by the ingenuity of his construction, but by a just proportionality in the features qualifying it for its work; as in life generally the intelligence of a man is not measured by his ability to defend any theories he chooses to advance, but by the quick intuition distinguishing the false from the true.

The Indian Legislature is still trying to pass some law which will restrict the speed of automobiles, but thus far nothing has been agreed upon. There are several bills in the hands of the different committees which seek to regulate the speed of machines approaching horses; the latest providing that the speed shall not be in excess of four miles an hour.

To improve a good automobile calls for more specialized and differentiated positive knowledge than the original construction of it. For a few years yet untiring study must be the price of prominence in the automobile industry, and it is doubtful if the work can be hired done.

Commercial Vehicle Contest in May.

Notwithstanding the disapproval expressed by the National Association of Automobile Manufacturers, as reported last week, the Automobile Club of America intends to hold a contest for motor trucks and heavy as well as light delivery wagons in May. Since the club received notice that the Manufacturers' Association deemed such a contest inexpedient for the present, the Board of Governors of the club has instructed its Contest Committee to proceed with the necessary arrangements and to obtain from large firms who make daily use of trucks and other self-propelled vehicles for business purposes, all available data in regard to the most important requirements that are made of such vehicles for long and short hauls under varying conditions. In compliance with these instructions the Contest Committee, composed of Messrs. Hill, Brooks and Conklin, have addressed the following letter to 75 users of business automobiles in New York:

The Automobile Club of America, as you perhaps know, is an organization, one of the purposes of which is to encourage the introduction and use of all types of self-propelled vehicles. To this end the club has from time to time held contests for automobiles to demonstrate their reliability as a pleasure vehicle.

The board of governors of the club have now instructed their contest committee to hold a contest in the spring, probably in May, for commercial vehicles of all types, including heavy trucks and delivery wagons, as well as light delivery wagons, propelled by gasoline, steam or electricity.

It is the intention of the club to determine by this contest whether the time has arrived when it can be satisfactorily demonstrated that self-propelled vehicles can be used in commerce at less cost and to greater advantage than the present horse-drawn vehicles.

We believe that this question cannot fail to interest you, and the contest committee is anxious to secure the views of gentlemen who are in charge of the deliveries for large commercial institutions in the city, with a view of making the contest cover the ground most desired by the companies delivering goods in New York and vicinity.

If your company would have the gentleman in charge of your delivery department meet this committee at the clubhouse, 753 Fifth Avenue, New York, on Thursday, February 19, at 4 o'clock in the afternoon, and talk over the matter, we think it would be of mutual interest.

Will you kindly advise us whether you will send a representative, and oblige, yours truly,

THE CONTEST COMMITTEE.

P. S.—We wish to learn what are the general requirements for a long as well as a short haul, and for both light and heavy vehicles.

It is the intention of the club to formulate the rules and the system of awards for its contest with special regard to the information which will be received from those addressed in this letter, considering that these firms have already gathered a valuable fund of practical experience with existing types of mechanical vehicles and are well able to distinguish important points from mere theory.

The New York Sportmen's Show.

The ninth annual Sportsmen's Show will open at Madison Square Garden, New York, on Saturday, February 21, and will continue until March 7. While hunting, fishing and game will claim the usual prominence, there will be ample space allotted to launches and launch motors, boats and canoes. This part of the exhibit, which always attracts a large attendance of New York yachtsmen, will include a number of the leading makes of motors and launches.

Long Islands A. C's. First Run.

The Long Island A. C. celebrated Lincoln's birthday by a club run in which eleven cars and about thirty persons took part. The start was made at 10.30 from the club quarters on Bedford Avenue Brooklyn, then out to Jamaica, Flushing and Old Westbury, where a stop was made for luncheon, then on to Mineola and home by way of Freeport and Lynbrook. After some 72 miles the party was ready to enjoy dinner at the Holly Inn. The roads were good and the weather warm and Spring-like.

Philadelphia Run Declared Off.

Owing to the heavy snowstorm the runs and tours committee of the Automobile Club of America, after consultation with those who intended to participate, has declared off, for the present, the run from New York to Philadelphia, which was scheduled for Saturday, February 21.

Fournier Asks for Race.

Special Correspondence.

MILWAUKEE, Wis., Feb. 14.—Orlando Weber, of this city, has received a letter from A. G. Batchelder asking for a date upon which Henri Fournier, the French mororist, can appear in this city. The letter has been forwarded to the managers of the State Fair Association for consideration. It is probable that an attempt will be made to get the Frenchman in Milwaukee during the State fair. Just who could be secured to race against Fournier is a matter of speculation. There are many machines here, though it would be difficult to find one that is fit to put up exceptionally fast time. Some of the fast machines owned by Milwaukeeans include two Wintons, one owned by George Odenbrett and one by Dr. J. C. Lemon. Mr. Weber has a fast National and a Toledo machine that can make good time. A. Darracq is owned by Theodore Jonas, who also possesses a Haynes-Apperson.

Saint Petersburg boasts of two automobile clubs, the Automobile Club de Saint Petersburg and a new organization, the Society of Automobilists of Russia.

Motor Launches and Marine Motors at the Detroit Sportsmen's Show.

Staff Correspondence.

DETROIT, Feb. 14.—Five Western builders of gasoline launches and marine motors took advantage of the opportunity offered by the Second Annual Automobile and Sporting Goods Exhibition, which closed to-night, to bring their products to the attention of the local and visiting public. Four of these five exhibitors were local concerns, Detroit having developed into the foremost lake port in the production of motor boats and marine motors.

TRUSCOTT LAUNCHES AND MOTORS.

Most prominent of these displays, because of the size and location of its booth, the position of its launch and the absence of a railing, was that of the Truscott Boat Manufacturing Company, of St. Joseph, Mich., for which A. L. Melvin is selling agent for Detroit and vicinity. On the floor at the front of its space was shown one of its new 16-foot standard launches, 4 ft. 9 in. beam, with adjustable awning, designed to carry five or six persons in safety and comfort. Fitted with a single-cylinder motor, this will give a speed of 6 1-2 to 8 miles an hour. It has almost a square stem and an overhanging, rounded stern. Hung from the gallery above and back of this was a 16-foot wood canoe, and on the floor back of the launch were shown a Truscott single-cylinder motor connected up with a propeller immersed in a tank of water for demonstration purposes, and a single-cylinder motor with one-third of the cylinder and head cut away and the piston, crank and sparking mechanism kept in slow operation by means of a belt from a small electric motor. This was a two-cycle motor and sparked at every up stroke of the piston.

DINGFELDER'S LAUNCH DISPLAY.

Max Dingfelder, of Detroit, showed a 20-foot launch equipped with one of his 3 1-2 horse power single-cylinder motors and a light automobile runabout fitted with a 3 horse power single-cylinder motor. In addition his exhibit included a four-cylinder vertical marine motor mounted on a stone block in the middle of the booth and connected up to be kept in operation for the purpose of showing spectators how smoothly and quietly it runs; a 3 1-2 horse power single-cylinder marine motor of 4 1-2-inch bore by 5-inch stroke, and a 2 horse power single-cylinder marine motor. His motors are all of the same general design, the multiple cylinder engines being a twin or quadruple combination of the single-cylinder motors. The automobile motor is horizontal instead of vertical. The four-cylinder motor was sparked from one Huff coil made by the Crescent Machine Co., of Detroit, whose coils and spark plugs were shown in the Dingfelder booth.

POWERFUL STRELINGER MOTORS.

Charles A. Strelinger & Co., of Detroit, exhibited four of their gasoline marine motors under the balcony on the main floor of the armory. Three were single-cylinder engines, from 3 to 20 horse power, and the fourth was a twin-cylinder upright motor of 10 horse power. One of the single-cylinder engines was mounted with a propeller in a tank of water and was run occasionally for demonstration purposes. The others were mounted on a platform with their bases imbedded.

The Strelinger engines are of simple four-cycle pattern, all parts splash lubricated and having only one oil cup and two grease cups, whether the motors be of one, two or four cylinders. The base of the crank chamber is separated into four compartments by transverse ribs, each section having a trough along one side to catch the oil as it is thrown against the side of the case and carry it into the next compartment. From the last compartment the oil flows back into the first through a channel at the base of the case. The motors are equipped with the Brush automatic mixing valve, which, once having been regulated properly, need not be changed, the quantity of gas being changeable at will without altering the mixture.

SHEET METAL LAUNCHES.

The most prominent feature of the exhibit of the Michigan Steel Boat Co., of Detroit, was a 25-foot pleasure launch with seamed sheet steel hull, equipped with a single-cylinder gasoline motor and fitted with canopy top and plush and black leather seat cushions. The hull was of Apollo galvanized steel, painted with Pégamoid. There were also galvanized sheet steel rowboats, duck boat and an aluminum rowboat. These hulls are built up of strips of the metal cut from special patterns and made to conform without strain to all the various curves of the many models of boats made by the Michigan Steel Boat Co. The edges of the strips are then lapped, folded and seamed by a special process invented and patented by the company. The seams run from stem to stern and give great longitudinal strength to the hulls. Leakage is rendered impossible by the form of seam. All bolts, rivets and screws are galvanized heavily to prevent rusting. Especially attractive features about these boats are their great indestructibility, their great resistance to rust, the fact that they are absolutely unaffected by dry or wet weather, that they cannot leak, cannot burn, never rot and are impregnable to teredos in salt water. The launches are fitted with Howard, Blomstrom or Royal motors at the option of the buyer.

A 12-foot launch, fitted with the submerged electric boat motor, was exhibited in the main aisle of the main floor. It was for sale by William E. Metzger.

BLOOMSTROM MOTORS AND LAUNCHES.

In the basement C. H. Blomstrom & Co., of Detroit, showed a 15-foot launch of 4-foot beam fitted with a 3-4 horse power Blomstrom motor. This is being offered at a surprisingly low price, and Blomstrom & Co. are putting 500 similar launches through their plant at the present time, though it is not certain that the price will remain the same. Blomstrom motors are being made for both marine and automobile use, in fifteen sizes, from 3-4 horse power to 80 horse power. They are being made in lots of 1,000 by automatic machinery, so that all parts are interchangeable. They are of one, two and four-cylinder pattern, the marine motors operating on the two-cycle principle. Simplicity, compactness and durability have been the principal aims in design and construction. Both jump spark and mechanical ignition are used, with spark-shifting device for accelerating or retarding ignition.

The vaporizer is automatic in regulation and has its air and gasoline valves independent of each other and disposed in vertical position. The motors as furnished are fitted with lubricators, grease cups, muffler, batteries, spark coil, switch, propeller, 6-foot shaft, stern pipe, stern bearing, pump and solid nut wrench. One of the single-cylinder engines fully equipped, was exhibited together with the launch.

SCHOONMAKER BILGE SYPHON.

Edwin M. Stone, of Detroit, showed the Schoonmaker independent bilge siphon, a simple device connected to the exhaust pipe between the motor and muffler so that the bilge water is sucked out of the boat and blown out behind without setting up any back pressure or consuming power. Neither does the dirty water have to pass through a cylinder.

WITH HOUSEBOAT AND LAUNCH IN FLORIDA WATERS.

Special Correspondence.

PALM BEACH, Fla., February 5.—Lieut. Hugh H. Willoughby, of Newport, R. I., is now here on his famous houseboat *Manatee*. The staunch old craft in new paint and fittings seemed to be impatient to be off for her old haunts in the broad, blue waters of Biscayne and Florida Bay. With the *Manatee* is a new launch, the *Hissee*, a Seminole word meaning "friend," the name of the old canoe in which Lieutenant Willoughby made a memorable

crossing of the Everglades. The old boat lies on the deck of the *Manatee* and is doubtless destined for further service.

The *Hissee's* new namesake is a remarkable launch. She is 40 feet over all, 7 feet wide and with a draught of only 10 inches. Her narrow bow, sharp hull, peculiar stern and shallow draught fit her admirably for Lieutenant Willoughby's work in shoal waters. In addition the launch has two outside-hung rudders, and the shaft is fitted with a universal joint, allowing the screw to be raised or lowered according to the depth of water. The *Hissee* is equipped with a 14 horse-power four-cycle Buffalo motor.

The houseboat *Manatee* is complete in every matter of convenience. She has broad decks forward and aft and the cabin is divided into a living and bedroom forward and saloon aft, in the rear of which is a refrigerator room and tiny galley, in charge of a trim little Japanese. The two large rooms are fitted like any landlubber's residence, but along the passageway connecting them are six little cabins appointed as in a yacht. There is a bathroom, and opposite is Lieutenant Willoughby's "den" and four sleeping rooms with bunks, lockers and neat little folding lavatories. There is a series of connecting tanks to receive the rain water from the upper deck, giving an ample supply of fresh water. On the forward deck are two good-sized aquaria for the preservation and study of rare specimens.

Lieutenant Willoughby expects to make two cruises among the keys and inlets of the southern coast, hunting, fishing and collecting new specimens of fauna. His magnificent manatee, caught last Winter, is now being mounted for the Academy of Natural Science in Philadelphia, and he intends presenting the Academy also with an old Seminole dugout. At the end of the cruises the *Manatee* will be laid up at Palm Beach and the Lieutenant will be joined by Mrs. Willoughby and their daughter.

Launch for Harbor Patrol.

Special Correspondence.

NEW LONDON, Conn., Feb. 7.—New uses for the motor launch are asserting themselves quite rapidly, and the latest development is credited to Providence, R. I., where the city intends to equip the harbor master with a launch in which he may keep the channel of the Providence River and Narragansett Bay clear of craft. At a recent meeting of the harbor committee of the Providence Common Council a resolution was passed asking the Council that the sum of $500 be taken from the contingent fund for the purchase of a launch. Another resolution asks permission to make an ordinance governing the use of the launch.

This matter was brought up some time ago, and it was voted by the council at that time that the launch should be purchased; but later this vote was rescinded. It is the opinion of the harbor committee that the harbor master is very much in need of a good boat with which he may traverse the waters of the river and bay and see that the channel is kept clear as it should be. For the last few months there has been a large number of vessels plying in and out of the waters and much trouble in keeping the channel clear, as the only way by which the harbor master could reach vessels was in a rowboat. The Providence Board of Trade is much interested in the matter of the purchase of a new launch, as it thinks that the city, which has one of the best harbors on the New England coast, should be up to date in the matter of equipping the harbor master.

Licensed Engineers for Motor Boats.

New York yachtsmen are disturbed over the introduction of a bill in the State Legislature by Assemblyman L. P. Ulman, a Democrat representing the Twenty-fourth District in New York city. The passage of this bill will mean that owners of motor boats of any description must employ a licensed engineer to attend to the motor. As the operation of the ordinary launch motor is very simple and quickly learned, yachtsmen and owners of power boats believe the bill to be an unnecessary measure, especially as the Federal regulations do not require the employment of a licensed engineer for motor pleasure boats. The proposed measure will be discussed at coming meetings of the yacht clubs and of the recently formed motor boat association.

Gasoline Tender for New Defender.

A high-speed gasoline launch will be used by C. Oliver Iselin as a tender for the new America's Cup defender now building at Bristol. The launch will be from the designs of Chas. F. Herreshoff, Jr., of New York, her dimensions being: length over all, 37 feet; waterline, 32 feet; breadth, 6 feet 2 inches; draft, 2 feet. She will be open, with a canopy and two spray hoods. A Howard motor, four-cycle, four-cylinder, will be used, and a speed of 13 miles is expected.

Gasoline Cruising Yacht.

The Electric Launch Company, of Bayonne, N. J., has in hand a gasoline cruising launch for W. F. Morgan, of Brooklyn, who will use her on Long Island Sound. She will be 60 feet over all, 57 feet waterline, 9 feet 9 inches breadth and 3 feet draft, with two gasoline motors of 25-horse power each. The motors will be placed well forward, just below the bridge, so that they may be under the control of the helmsman. The cabins will be fitted with six berths, with two more in the engine room. The interior will be handsomely furnished, with an electric lighting outfit.

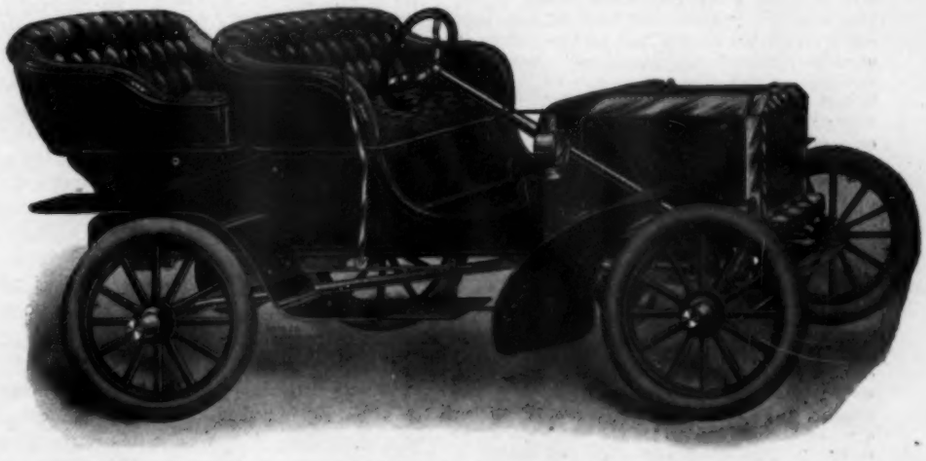
Motor Boat Notes.

There is some talk of running a pleasure line of fast motor boats between Bridgeport and New Haven next summer. The matter is being looked into, and if it is thought that the undertaking will pay it will be put through.

The Seaside Launch Works, Norton's Bridge, Far Rockaway, New York, has in hand a powerful launch of 45 feet over all for the Taylor Dredging Co., of Jersey City. She will carry a Craig four-cycle motor of 20-horse power.

Fred R. Crosby, of Springfield, Mass., will be independent of transportation lines during his season at Saunders' Grove, near Niantic, next summer. A 22-foot speed launch, building by John H. Luce at Niantic, will carry Mr. Crosby and his family to and from New London, and even Springfield.

E. C. Schluda, of New Orleans, La., owner of the high-speed steam yacht *Krotha*, has completed the equipment of that craft with a 16-foot tender designed by Frederic S. Nock, of West Mystic. The tender, which is equipped with a special 4-horse power Buffalo motor, was shipped overland recently from the shop of McCreery & Lane at Mystic.



WELCH TOURIST CAR EXHIBITED AT THE CHICAGO AUTO SHOW.

Legislative and Legal News.

Special Correspondence.

MILWAUKEE, Feb. 14.—There is a politician in Wisconsin, who, for unknown reasons, has a grudge against the owners of automobiles, and has decided that the State needs a law pertaining to that class of vehicles. Assemblyman Moldenhauer, who is from the northern part of the State, on February 3 introduced in the Assembly a bill providing that all owners of automobiles must obtain a State license, for which they must pay $1.

This alone does not satisfy the legislator, but he says he is anxious to save many lives, despite the fact that no one has ever met death through a motor vehicle in Wisconsin. The bill requires that the owner's name shall be painted in 3-inch letters on the sides or back of the vehicle, to be used to identify the owner should he happen to run over any one.

It is also required that the machine shall be equipped with a powerful brake, carry lights during the night hours, and have a whistle, bell or horn so as to attract the attention of those who may be in the street while the vehicle is in the vicinity; also, that the operator shall stop the vehicle when near a frightened or balky horse.

When the bill was introduced the Milwaukee representative of THE AUTOMOBILE was notified, and he in turn notified members of the Milwaukee Automobile Club. The news came somewhat as a surprise, but it is safe to say that the motorists of Milwaukee as well as those from various parts of the State will be out in full force to oppose it. The bill in full is as follows:

A BILL.

The people of the State of Wisconsin, represented in Senate and Assembly, do enact as follows:—

Section 1. Every owner of an automobile or motor vehicle shall file in the office of the Secretary of State, a statement of his name and address with a brief description of the character of such vehicle, and shall pay to the Secretary of State, a registration fee of one dollar. The Secretary of State shall issue to such person a certificate, stating that he has registered in accordance with this section, and shall cause the name of such person to be entered in alphabetical order in a book kept for such purpose. Every person hereafter acquiring an automobile or motor vehicle shall within ten days after acquiring the same register with the Secretary of State as required by this section, this section shall not apply to a person manufacturing or dealing in automobiles or motor vehicles, except those for his own private use.

Section 2. Every automobile or motor vehicle shall be provided with good and efficient brakes and shall also be provided with a suitable bell, horn or other signal. Every automobile or similar motor vehicle shall be so constructed as to exhibit during the period from one hour after sunset to one hour before sunrise, two lamps showing white lights visible within a reasonable distance in the direction toward which the automobile is proceeding, and shall also exhibit a red light visible in the reverse direction. The lamps shall be so placed as to be free from obstruction to the light from other parts of said automobile or other motor vehicle.

Section 3. Every person driving an automobile or motor vehicle shall at request or signal by putting up the hand from a person driving or riding a restive horse or horses, or driving domestic animals cause the automobile to immediately stop and to remain stationary, so long as may be necessary to allow said horses or domestic animals to pass. This provision shall apply to automobiles or motor vehicles going either in the same or in an opposite direction.

Section 4. Any person owning or operating an automobile or motor vehicle whether the motive power of the same be electricity, steam, gasoline or other source of energy, except such as are used for public hacks, trucks or other vehicles for hire, shall not be required to obtain any license or permit pursuant to the provisions of any local or municipal resolution or ordinance or the rules or regulations of any commissioners, trustees, supervisors or other authorities having charge or control of any highway, public street, parkway, driveway or place, or pursuant to the provisions of any municipal charter or any other statute except as herein contained. Every such automobile or motor vehicle shall have the separate initials of the owner's name placed upon the back thereof, in a conspicuous place, the letters forming such initials to be at least three inches in height.

Section 5. The penalty for violating any of the provisions of section one to section four relating to automobiles or motor vehicles propelled by electricity, steam, gasoline or other source of energy, shall be not exceeding twenty-five dollars.

Section 6. This bill shall take effect and be in force from and after its passage and publication.

SPEED DEMONSTRATION FOR MINNESOTA STATE LEGISLATORS.

Special Correspondence.

MINNEAPOLIS, February 12—The members of the Road and Bridge Committee of the State Legislature were given an automobile ride about St. Paul for purpose of practically demonstrating the possibilities of the vehicle.

The Legislature has before it the bill of L. H. Johnson, of Minneapolis, fixing the maximum rate of speed of automobiles within the city limits at eight miles an hour, and fifteen miles an hour on country roads. The bill is very much in disfavor with the automobilists of the two cities.

E. J. Phelps, one of the leading automobilists of Minneapolis, appeared before the committee, urging the raising of the limit. He maintained that twenty-five miles an hour was a perfectly safe limit for country roads, and that if it were much lower the law would still be repeatedly broken. He argued that it would be useless to own an automobile with an eight hour limit in the city.

Mr. Phelps invited the members of the committee to a ride, and fifteen machines were placed at the disposal of the committee. The ride was similar to that given to the Minneapolis Aldermen last fall, and showed how safely the machines could be operated through the business streets.

Dr. J. D. Budd, of Two Harbors, has appeared as the mororists champion. He is urging the members of the committee to take a sensible view of the matter. He realizes that the motor vehicle has come to stay, and maintains that only such limits should be placed upon it as are required for public safety. Dr. Budd informed the committee that it would be child's play to try to limit the speed to less than that at which horses are being driven through the streets every day.

LEGISLATION IN NEW JERSEY—AMENDMENTS TO THE SCOVEL BILL.

Through the exertions of New Jersey mororists some important changes have been made in the Scovel bill, now before the Legislature, and it is expected that the bill in its new form will become a law without further opposition. On February 9 the representatives of the New Jersey Automobile Club, Karl G. Roebling and John S. Broughton, met Assemblyman Scovel and presented the club's objections to his measure. After an amicable discussion a substitute was agreed to, which will take the place of the original.

As now proposed the speed limit will be ten miles within built-up portions of cities, and twenty miles in the country; physicians and surgeons when on emergency service being excepted from this provision. Every motorist must stop on signal from the driver of a horse, remaining stationary until the team has passed. Owners of motor vehicles, both residents of the State and non-residents, driving in the State, must file with the Secretary of State a description of his vehicle, with his name and address, paying a registration fee of $1 and receiving a certificate.

License numbers and owner's initials, in characters at least three inches high, shall be displayed on the rear of every machine; two white lamps forward and one red lamp facing astern must be carried, with bell, horn or whistle, and good brakes. Motorists are accorded equal rights and privileges with users of horses, and they may not be excluded from public streets, parkways and other public ways open to horse-drawn vehicles.

A motor vehicle is described as including automobiles and all other vehicles propelled otherwise than by muscular power, and not running upon rails. In case of the violation of any provisions of the act, the offender will be liable to a fine of $25, to be paid to the Overseer of the Poor. Complaints may be tried before Justices of the Peace, Police Magistrates and Recorders, and appeals may be taken to the Court of Common Pleas.

Several advances in values have been made of late by Appraiser Whitehead, of the New York Custom House, these being sustained by the Board of U. S. General Appraisers.

NEW RESTRICTIVE MEASURES BEFORE CONNECTICUT LEGISLATURE.

Special Correspondence.

NEW HAVEN, February 14.—Assemblyman Coit, of New London, has introduced a bill in the Connecticut Legislature in reference to motor vehicles that is believed to be without a counterpart in this country. This bill proposes to limit the power of a motor vehicle, by providing that no automobile of more than 20 horsepower shall be run on any highway outside of the limits of the city. The same bill also provides that no motor vehicle shall be used on any highway for the purpose of drawing or propelling other vehicles loaded with freight, merchandise or passengers.

The bill has been sent to the Committee on the Judiciary.

The Hartford Courant and *The New Haven Register*, both representative papers of the State, oppose the proposed legislation decreasing the speed of automobiles. They favor the bill providing for the identifying of automobiles by numbers or letters.

A bill establishing rates of toll for automobiles on ferries has been introduced at this session of the Legislature.

Amended Warren Bills.

Special Correspondence.

NEW HAVEN, Feb. 14.—Two new automobile bills have made their appearance in the General Assembly, the first being a speed bill, introduced by J. R. Warren, of Lyme. It seems to be an amended edition of the bill introduced by him two weeks ago, which provided for comparatively light fines only. The new bill forbids automobiles to move on country roads faster than eight miles per hour, and requires them to be brought to a full stop when horses near by show signs of fright. Penalty for not observing the law, a fine of not more than $300 or imprisonment for not over thirty days, or both; one-half of any fine to go to the informer. This bill was referred to the Committee on Public Safety.

Assemblyman Banks, of Fairfield, offered a bill, requiring that "every automobile or motor cycle shall be plainly marked with the owner's name and residence, stating city or town and State, in black letters one inch in length. Every person who shall use an automobile or motorcycle upon any street or highway, not marked as above provided, shall be fined $5 for each offense." This was referred to the Committee on Roads, Rivers and Bridges.

Representative Warren's Views.

Special Correspondence.

NEW LONDON, Conn., February 14—In an interview to-day with Representative J. Raymond Warren, of Lyme, outlined his ideals in connection with the two bills he has introduced in the House of Representatives. However the Legislature may act on the measures Mr. Warren states that he will be quite well satisfied with having aroused public interest on the automobile speed question.

"I have nothing against the automobile nor the people who indulge in that form of recreation," said Mr. Warren, "but I do not wish to have any one confound my interest with a personal encounter with red devils. Nothing of the sort. I have not yet encountered an automobile on a country road when out driving, but some of my townsmen have suffered severely and other who have been victims of reckless drivers have sought my good offices in behalf of some disciplinary measure. I acknowledge that eight miles an hour is rather slow speed for these modern machines, still on the country roads mostly used that speed should be high enough, considering the condition of the highways and their width. To meet with any ordinary horse an automobile going anywhere from fifteen to fifty miles an hour on such roads means little less than a fatality. Eight miles on ordinary roads seems to me sufficient until a wider expanse is reached and machine and horse will have an opportunity for manoeuvring.

"I find on investigation of cases of accident and from reports sent to me by persons who have encountered the speedy automobile and come out second best that as a rule the man in the seat of a flyer has little consideration for others in his path, and many cases have come up where accidents have happened and the auttomobilist hasn't even stopped to ascertain the extent of the damage. These are not rare cases, they are quite frequent, and the actions of these automobile drivers demand the regulation of the whole army of operators and owners. I do not think that any citizen of Connecticut who owns a machine need fear any hardship from the bills I have introduced. It is not the home automobilist who is to blame, it is the man of wealth as a rule from another State.

"I have been quite sharply criticised for my bills," continued Mr. Warren, "but have nothing to say other than that there is something to be said on both sides, and when the bills come up that something will be said with the support of thousands behind the sentiment."

United Resistance to Freak Laws.

Special Correspondence.

NEW LONDON, Conn., Feb. 16.—The Automobile Club of Bridgeport has named Frank T. Staples, Thomas Fish, Dr. Dow R. Beebe, Gregory S. Bryan and Archibald McNiel, Jr., a committee to co-operate with the Hartford Automobile Club in opposing the passage of the bills introduced in the Connecticut Legislature, forbidding the running of automobiles faster than eight miles an hour. The Bridgeport Club has adopted resolutions declaring that the present state law, allowing speed of twelve miles in cities and fifvteen miles in rural districts, is fair alike to motorists and to the public. The joint committee of the Bridgeport and Hartford clubs will invite all clubs in the state and independent motorists to join them in appearing before the legislative committee on public safety in opposition to the slow-speed bill.

Damages from Automobilists.

Special Correspondence.

NEW HAVEN, Conn., Feb. 16.—A verdict of $225 has been awarded by a Springfield, Mass., jury in the case of Jerome L. Pomeroy vs. Samuel T. Ball in the Superior Court. The plaintiff had sued for $5,000 in settlement of a claim for damages alleged to have been received as a result of a collision with an automobile driven by the defendant on State Street.

NEW LONDON, Conn., Feb. 14.—Edward E. Dammers, a widely-known optician, with offices in New London, Conn., has recently been assessed $85 and costs of trial by the common pleas court of Rhode Island for having run down a bicyclist with his automobile. The bicyclist brought suit for $3,000. The court found that the defendant was negligent in not giving proper warning by bell or horn and that he was about to cross an intersecting street where the collision occurred.

IMPORTANT AMENDMENT TO THE PATENT LAWS IS PROPOSED.

Special Correspondence.

WASHINGTON, D. C. February 14—Of very great interest to the inventors of the country is the bill recently introduced in Congress by Representative Reeves, providing that section 4921 of the Revised Statutes be amended by adding at the end thereof the following words: "Injunctions to restrain infringements *pendente lite* shall not be denied for the sole reason that the patent is of recent date or has not been adjudicated: Provided, that this act shall not in any way apply to any suit at law or in equity pending at the time of the final passage of this act."

In explaining the proposed amendment, Representative Reeves said to THE AUTOMOBILE correspondent: "The practice in England for many years was, practically, to grant every application for patent, ignoring the question of whether the patent applied for was covered by an existing patent, leaving it to the courts to determine the rights of patentees in each and every patent when the same is brought into question. Prior to 1836 a similar practice prevailed in the United States and under this practice applications for preliminary injunctions by the owner of a patent were uniformly denied until such time as the patent had been adjudicated in the courts or until long use

of the same had created the presumption of public acquiescence in the validity of the patent.

"In 1836 the corps of examiners for the Patent Office was provided for, the object being to have an adjudication of the Patent Office of the novelty of the patent before it issued. Thereafter a patent was deemed generally to be *prima facie* evidence of its own validity, and the Supreme Court of the United States expressly so held in Corning v. Burden (15 Howard, 252). Under this condition of the law the courts granted temporary injunctions, when, in their judgment, the merits of the case required it.

"The act of 1891 gave right of appeal from an order granting or continuing a preliminary injunction; the act of February 18, 1895, extended this right to orders refusing or dissolving injunctions. This was superseded by the act of June 6, 1900, which again limited the right of appeal in such cases to orders granting or continuing injunctions, and not allowing an appeal from an order refusing a preliminary injunction.

"The object of this bill is to enable the circuit courts to grant temporary injunctions in cases in which the courts think a temporary injunction should be granted, or, in other words, to let each case stand upon its own merits before the courts, influenced by previous legislation or decisions. It does not compel the granting of temporary injunctions nor interfere with the discretion of the courts in the matter of temporary injunctions, but, on the contrary, leaves the circuit courts with the discretion to grant or refuse temporary injunctions according to the merits of each case."

The bill was originally prepared by the Patent Lawyers' Association of Chicago, and has been indorsed by the patent law fraternity in all parts of the country. It is also recommended by the Commissioner of Patents. The bill has been reported to the House from the Committee on Patents with the recommendation that it be enacted.

The second complaint against Paul Verget, driver for Cord Meyer, of Elmhurst, Long Island, came to trial on February 5, the first complaint having been withdrawn owing to a clerical error. The witnesses against Verget were deputy sheriffs specially detailed to time motorists on Long Island roads. Mr. Meyer testified that the car was of but 8 horse-power and incapable of traveling over 20 miles per hour. At the time of the arrest the motor was out of gear and the car was coasting down a low hill. The jury of six disagreed, four being for conviction. Another jury will be drawn and a new trial will take place on February 20.

The stock and machinery of the Taunton (Mass.) Automobile Co. was sold at auction on January 30 and the business will be discontinued.

Correspondence

A Pennsylvania Measure.

Editor THE AUTOMOBILE:

Sir:—Permit me to call attention through your columns to a good roads bill that has been or is about to be introduced at this session of the Legislature of the State of Pennsylvania, having been prepared by Arthur Kirk, of Sharpsburg, Pa. This bill was before the House of Representatives in 1901, but was not passed for some reason. Whether the next attempt will be more successful is, of course, not known. While the bill as a whole is probably a good one so far as it applies to good roads, it contains a slap at automobile users that is unquestionably unfair and uncalled for, and this section should be stricken out or amended before the bill is passed. It is Section 38 and provides that "Every owner or user of an inanimate motive-power-propelled-road-traveling vehicle shall annually pay to his or her county treasurer (except makers) $20 on or before the first day of April of each year, or $3 per month for any fraction of a year. For which he or she shall be given a licensed figured plate by the county engineer, which must be conspicuously attached on the left side of the vehicle, so that its number can be easily read while the vehicle is in motion; and, if the above license fee is not paid before the tenth of each year, a penalty of 50 cents for each month or fraction of a month, will be added. The above license fee, with cost of collection and all penalty for non-payment of license, shall be paid to the informer who gives information that license for that year has not been paid." CHARLES D. DURYEA,

First V. P. American Motor League.

Reading, Pa.

Accident With a Moral.

Editor THE AUTOMOBILE:

Sir:—I am rebuilding a 12 horse power Packard machine, and among other things will have a machine oil tank of several gallons capacity, and with ten to twenty pounds air pressure, with sight feeds. I note that some of the machines at the Garden show used this system and got the pressure from the circulating pump, Ward Leonard, for example, but I prefer to put the pressure way up and use the exhaust by tapping the cylinder just before the end of the stroke.

I would like to know if you know what pressure may be had in this way, without running the risk of getting an explosive mixture into the pressure tank, and if you would advise using a fairly large pressure tank and have a whistle to replace the horn. I now have a big 5-inch whistle on the muffler relief, but it is a little too hideous for use in the city or when I expect to return by the same road. People don't get out of the way for that whistle, but go straight in the air.

I recently had an exciting experience with a steam carriage that showed that in the hands of an inexperienced person a "dead cold" machine of that type may become very dangerous.

About two miles down the boulevard I met a gentleman with whom I was slightly acquainted, with a steamer which he had taken out for the first time alone. His gasoline pipe was stopped up and I offered to tow him home. We procured a piece of new clothesline and started off, but he pulled so hard that the rope broke and we doubled it up. After puffing hard for about a mile we went down a short hill, and at the foot I called to him to take off his brake, and the next instant he gave a wild yell and shot past me with a roaring exhaust, such as only a steamer can make, with a full head of steam and wide open throttle. The snapping of the rope caused him to swerve and he went smash into the high stone curb. The whole running gear and all the wheels were smashed and the driver and the seat left the machine and pitched nearly twenty feet over the walk, and the engine continued to spin the broken wheels around for a minute or more. It seems that this machine has a single lever, which controls the cut-off as well as the throttle. My friend had carelessly placed the lever in the full reverse position, and all the time I was tugging away at the rope he was pumping air into the boiler. The safety valve opened into the water tank and thus there was nothing to give warning. When I called to him to ease off the brake he noticed that the lever was in the reverse position, and thought it might pull easier if he put it forward—and it did!

The report got all over the town that I had swung the poor fellow around the curve at such a reckless pace that he could not steer straight, and I swore never to do any more towing.

This accident is so strange and funny in its way that perhaps you may think it worth describing in your paper.

S. W. R.

Jersey City, N. J.

[Why not tap the exhaust pipe just beyond the valve, instead of the cylinder? It is safer and should give you all the necessary pressure. This system is, or was, used in several makes of cars, notably the English Daimler. An automatic relief valve should be used to keep the pressure from rising too high, and this valve would better be located in the pipe, so that no hot gas will get to the tank. Probably you could count on ten pounds pressure. There seems to be no difficulty in the way of adding a whistle.—Ed.]

A new steam omnibus from the Serpollet works is now being tested between Paris and Melun.

INDUSTRIAL

TOLEDO'S STRONG BID FOR LEAD IN MOTORDOM.

PIKED ROADS FOR MILES AROUND

Local Club and Active Trade Vie to Bring Automobiles Into General Use for Business and Pleasure—Purchasers During 1902—Bright Outlook for Present Year.

Special Correspondence.

TOLEDO, O., Feb. 13—One hundred and fifty Toledoans owned and drove automobiles last year. Perhaps fifty of these machines have been light steam runabouts. The others have been heavier cars. One feature that has tended toward the popularity of the automobile has been the organization of the Toledo Automobile Club. The promoters of this association were late in commencing work and it was not until the first week in September that an organization was perfected. Two subsequent meetings were held and in October a race meeting was given. It was a success in every particular. A large crowd was at the track and the events were close and exciting. The club now has a membership of forty, and there are a number of applications in the possession of the secretary awaiting action by the club. The officers of the club are: Dr. Lewis A. Liffring, president; Dr. C. P. Wagar, vice-president; George A. Palmer, secretary and treasurer. It is the intention of the club to give a first class race meeting next season. The best operators in the country will be invited to participate in the contests and valuable prizes will be offered for the winners of these events.

LONG RUNS AND TOURS POPULAR.

During the year which has just closed the following have purchased touring cars: J. K. Secor, George Ford, Edward Affleck, William Kettering, W. W. Morrison, E. H. Close, Roy Bradd, G. W. Winters, C. B. Halstead, Charles Bowman, and Dr. McNichol. Several long tours were made by the owners of the touring vehicles, George Ford and Dr. McNichols returned last fall from a hunting trip in the lower Michigan peninsula. The tour was made in a Winton and the drivers are authority for the statement that the trip was a thoroughly enjoyable one. W. W. Morrison has been to Chicago several times and he has also made journeys to the East. The more popular runs were to Cleveland and Detroit. Both of these cities are reached by runs over level roads and through a country that is famed for its beautiful scenery.

That Toledo people take to the automobile is not remarkable. On the contrary, it would be peculiar if they did not. Toledo is located in the center of a vast arable land. To the east and west the country is as level as the top of a billiard table. The roads are practically all piked and a run of fifty or one hundred miles hereabouts is not as much of a task as the run of half that distance where the conditions are not so favorable.

MANUFACTURE STIMULATES INTEREST.

It is claimed that there is not another city of Toledo's population in the country that can boast of as many automobilists. This is not strange, however, when one stops to consider that this is the home of one of the largest plants in the country devoted to the manufacture of gasoline and steam carriages—the Lozier works of the International Motor Car Co. Next year another concern, the Kirk-Snell Mfg. Co., will make a bid for the favor of the motorists. This will give Toledo two automobile factories and this in itself will be a great stimulus to public interest. The writer has had a number of talks with those who are directly interested in the trade, and they are unanimous in the opinion that the outlook for next season is better than it has been for any year since the introduction of the motor vehicle.

Another Asbestos Plant.

Special Correspondence.

WILWAUKEE, Wis, Feb. 14.—An asbestos manufacturing plant will in all probability be erected here in the very near future by the Keasbey & Mattison Asbestos Company, of Pennsylvania. The plant will cost about $500,000 if present plans are carried through, and it is probable that there will be no hitch. It has been reported that the company intended for some time to invade the home of its greatest rival, the Johns-Manville Company. The headquarters of the Keasbey & Mattison Company are at Ambler, Pa., and next to the Milwaukee concern it is the largest manufacturer of asbestos products in the world. The Johns-Manville Company reports business as being exceptionally good.

HORTICULTURAL HALL FOR PHILADELPHIA AUTOMOBILE SHOW.

Special Correspondence.

PHILADELPHIA, Feby. 10.—The selection of Horticultural Hall for the coming local automobile show by Manager Le Cato and his associates was a master-stroke. Apart from the fact that it is ideally located, being but three minutes' walk from City Hall, the building has the prestige of being always selected for the social events of the four hundred, hence the attendance from that class is assured.

The announcements have scheduled the show from March 2 to 7. This is not strictly in accordance with the facts, for the exhibition will open on Saturday evening, February 28, at 8 o'clock, and will continue till 10:30 on the evening of March 7.

The main hall spaces have all been disposed of, several requests for accommodations there having been "turned down" by Manager Le Cato, and but two or three of the smaller spaces in the "sundries hall" remain untaken. Mr. Le Cato says that several parties are at present negotiating for these, and that long before the opening night every inch of space in both upper and lower halls will have been taken.

The main hall will be devoted to the display of complete vehicles, all accessories and kindred exhibits being necessarily relegated to the "sundries hall." All the more prominent American makes—gasoline, steam and electric—will be represented.

The social features of the show will be in charge of the Automobile Club of Philadelphia, and arrangements have been made for a number of functions to take place during the week. The music will be furnished afternoon and evening by Gatti's Marine Band.

AUTOMOBILE SHOW IN SAN FRANCISCO —PLANS FOR PACIFIC EXHIBITS.

Special Correspondence.

SAN FRANCISCO, Feb. 14.—E. P. Brinegar, vice-president and general manager of the Locomobile Company of America, left San Francisco on a trip to the Eastern States. His special object is to secure exhibits for the automobile show to be held in this city the first week in April. The Mechanics' Pavilion, the largest building for exhibition purposes in the State, has been secured and will be handsomely decorated. The show will include motor-cycles, cycles, guns, tools and sportsmen's goods of all kinds. Nearly all the big touring cars owned in San Francisco and neighborhood will be on exhibition, and it is intended to conduct the show on the same lines as the one recently held in Madison Square Garden. While on his trip Mr. Brinegar will visit the automobile show at Chicago.

J. F. McLain, R. C. Lennie and B. B. Stanley have been appointed a committee to call on the dealers and secure their contracts to exhibit. It is possible that the California Camera Club may be invited to exhibit, and that prizes may be offered for photographs in which automobiles appear. Fifteen local automobile dealers will be represented by exhibits at the show, which is intended to be the most notable ever held to the west of Chicago.

NEW DEALERS ASSOCIATION.

The Automobile Dealers' Association of San Francisco has just been organized, the officers being as follows: President, E. P. Brinegar; vice-president, C. A. Hawkins; secretary, A. E. Brooke-Ridley, and treasurer, Charles E. Linaker. The whole body of members will manage the affairs of the association. The objects of the association are to control prices, regulate rates for storage and repairs and secure increased privileges for motorists. The following rates have been agreed upon and will go into effect February 1:

For storing, cleaning and lubricating runabouts, $16 per month; for storing, etc., stanhopes, $19 per month; for storing, etc., touring cars, $22 per month.

LARGE TURNOUT OF MOTOR CARS.

The largest display of big touring cars ever made in this city occurred on January 30, when the State managers of the Metropolitan Life Insurance Company were taken out in ten heavy wagons to view the Presidio Reservation, the Cliff House, Golden Gate Park and other sights. The party numbered nearly sixty, including the insurance men and the operators.

J. F. McLain, of Pittsburg, formerly with the American Cycle Manufacturing Company, and well known in the automobile and cycle trade in the Eastern States, has been appointed sales manager of the Locomobile Company of the Pacific.

Will Remove Factory to Milwaukee.

Special Correspondence.

MILWAUKEE, Wis., Feb. 14.—The National Automobile Company, of Oshkosh, Wiss., will remove its plant to Milwaukee within the next few months. This announcement, made a few days ago, caused considerable surprise among the Milwaukeeans interested in the industry. The huge store and building 181-183 Second Street, in the downtown district, will be leased by the company. The lower floor and the basement will be occupied by Orlando Weber & Company, automobile agency, just organized. Mr. Weber was formerly president of the Weber Cycle Company. He will act as distributor for the National Company. In addition he is also agent in Wisconsin for the International Motor Car Company, of Toledo, and the General Automobile and Manufacturing Company, of Cleveland. The Weber concern will have its showroom on the first floor. A storage, washroom and repair shop will be in the basement.

The National Automobile Company was formed several months ago and soon after began the manufacture of motor vehicles. Several Eastern men are interested in the concern. It has been successful, and one of its officers in an interview with your representative said he expected to do much better business in Milwaukee because of the better facilities here.

E. C. Duryea Patents.

The patents of Charles E. Duryea have been purchased by the United States Rapid Vehicle Company, of New York, which company will shortly place on the market a number of vehicles using the Duryea motor and transmission systems. The first of these will be a four-wheeled carriage, with large wheels and heavy tires, designed to carry four persons. Following the policy of Mr. Duryea, the company will make a specialty of carriages of high power, light weight and moderate price, carrying four persons.

PLANS FOR REORGANIZATION OF WOODRUFF AUTO CO.

Special Correspondence.

AKRON, O., Feby. 21.—Plans are working out for a reorganization of the Woodruff Automobile Company, of Akron, or for the formation of a new company to take its place. The Woodruff Company was organized nearly two years ago and incorporated under Ohio laws with a capitalization of $50,000. Akron and Cleveland capital was interested, but the Forest City constituents were more vitally interested elsewhere and withdrew attention from the Akron automobile concern. The result is that an option has been given by them on their holdings and A. M. and G. E. Woodruff, practical machinists, who have been the real workers in the company, are helping to put through the plan to form a new and larger company. It is hoped to interest enough capital to buy the premises occupied and fit up a large plant. The capital stock may be placed at $500,000.

The plant now in use was formerly the home of the Akron Bicycle Company, and includes two or three large brick buildings, a large part of the space being now idle. Akron capital is principally interested in the new company movement.

The Woodruffs are working with a small force of men and have orders for a few touring cars, among them a large car for the Goodyear Tire and Rubber Company, to be used by that company in testing its tires. Gasoline furnishes the motive power for the Woodruff machines and the proprietors claim to have made several important and successful departures in building, about which they are not ready to talk, however, pending the formation of the new company. They have made a limited number of runabouts and express satisfaction with the success their products have met.

Basis of Remington Reorganization.

Reorganization of the Remington Automobile Co., whose plant in Utica, N. Y., has been idle for some time, has been undertaken by W. H. Owen, formerly of the Willoughby, Owen Co., makers of automobile bodies in Utica.

The plan as announced at the show on Wednesday allows the creditors of the company 6 per cent. preferred stock in the new company to the face value of their claims. Original stockholders will be entitled to surrender their holdings at the price paid ($30 per share), taking new stock therefor, paying 50 per cent. more in cash, for the purpose of raising a new working fund. In no other way is it contemplated to reorganize the original subscribers to the stock of the company.

It is announced that a majority of the creditors have already agreed to this plan, and the co-operation of the stockholders is now being sought, with the expectation of resuming work at an early date. At first the manufacture of complete vehicles will not be attempted. Instead, the engines will be bought and the machines built up and finished at the old plant. The intention is, however, to begin entire construction again as soon as that can be done advantageously

Gasoline Motor Trucks at Bridgeport.

Gasoline automobile trucks for express purposes with a capacity of two tons, weighing about 6,000 pounds and capable of running at ten miles an hour, are being built by the American and British Manufacturing Co., of Bridgeport, Conn. This is a new department in the company's shops and the first machines will be for experimental purposes. The first truck is expected to be ready for trial in sixty days.

Garage for E. V. Co. in Boston.

Special Correspondence.

BOSTON, Feby. 16.—It is reported that the Electric Vehicle Company has perfected plans by which it will branch out extensively in Boston this spring, and carry on not only the agency by which it has been represented for the last eighteen months, but also a large garage and repair establishment, where those who buy its make of automobiles may find special facilities for care and maintenance of electric vehicles. H. E. Marvel is the Boston agent.

A lease has been taken, it is stated, for the old brick electric light station on Stanhope street, between the Automobile Headquarters and the Trinity Place station of the Boston & Albany Railroad, and this old building will form the basis for the new garage. It tapers down into a shed at one end, and here a small new building will be erected for salesroom and office.

It is understood that the company's object is to build up the same kind of business which they have developed successfully in New York and Paris. At all events, Mr. Marvel has been making good progress lately in placing electric autos among private users in the Boston district, and in default of a large central garage which makes special provision for electrics it was up to his company to see that his customers were provided for. Storage will be a feature of the business, with caretakers in livery.

Trade Changes in Boston.

George Gordon Reed and Arthur P. Underhill, who for more than a year have been associated with automobile headquarters at 66-68 Stanhope Street, have taken desk room in the Winton station at 41 Stanhope Street, occupying the place jointly with Harry Fosdick, the Winton agent for Boston, until he shall move to the new brick two-story station now constructing for him at the corner of Stanhope and Berkeley Streets.